Unit 39: Understanding Captive Deer Herd Management

Unit code: A/601/2094

QCF Level 3: BTEC National

Credit value: 10

Guided learning hours: 60

Aim and purpose

This unit aims to introduce learners to captive deer herd management skills and understanding 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.

Unit introduction

Across the UK there are many deer parks and deer farms, which can form an important part of the rural economy. The UK's native deer species are a valuable part of our natural heritage and many people who visit the countryside take pleasure from seeing deer, albeit at a distance. Deer parks allow the animals to be viewed at close quarters, which can encourage greater understanding and interest in deer. The management of deer parks often falls to gamekeepers, who have a complex mixture of knowledge and skills covering both farmed and wild deer ecology, herd dynamics and breeding, venison production, pasture management, supplementary feeding and handling and capture techniques.

Learners will investigate the biology, ecology and behaviour of deer and how this compares with those of familiar domestic livestock. The adaptation of deer to a captive environment in both the long term and short term will also be studied. Learners will understand not only how deer can easily adapt to a captive environment but also how to manage deer, taking into account their specific requirements.

This unit also enables learners to gain a practical understanding of production systems, deer nutrition and the calculation of feed requirements and stocking rates.

Learners will have the opportunity to explore deer handling techniques and gain an understanding of how to plan the humane treatment and culling of deer. The relevant legislation concerning deer management will be considered throughout the unit.

Learning outcomes

On completion of this unit a learner should:

1 Know the biology, ecology and behaviour of deer in a captive environment

2 Be able to plan deer production and record keeping systems

3 Understand captive deer nutritional requirements

4 Know the humane capture, handling and culling of deer.

Unit content

1 Know the biology, ecology and behaviour of deer in a captive environment

Biology: type of gut and feeding requirements; susceptibility to disease; antlers and horns; teeth and tooth eruption pattern; longevity and breeding life; comparison with other domesticated livestock (similarities to deer, differences to deer) eg cattle, sheep, pigs

Ecology and behaviour: habitat preferences; habitat use; habitat damage; daily and seasonal cycles, herding/ solitary tendencies; dominance and territoriality; feeding behaviour, breeding behaviour

Adaptation of deer to captive management: suitable wild deer for captivity; rearing young deer; response of wild deer to captivity (walls, fences, gateways, people, vehicles); habituation; limited diet and winter feeding; lack of cover; culling in a confined environment; tagging, welfare

2 Be able to plan deer production and record keeping systems

Aims and objectives: maintaining aesthetic and historical value; optimising body weight; antler quality; breeding potential; venison production; meat hygiene; livestock sales; improving gross margin; maintenance of semi-rural swards; improving public access

Principles and practices: supplementary feeding; culling in confined and/or public environments; pasture management; venison production and meat hygiene; selection of breeding stock; analysis of gross margin; handling techniques; transportation techniques; mating systems; health and safety; personal protective equipment (PPE)

Production systems and record keeping: herds kept for aesthetic purpose eg country estates, deer parks, visitor centres; live sales; venison production; antler quality; wood pasture; deer farming; records: veterinary and medicine records, production records, quality assured farmed venison requirements; legal restraints; welfare

3 Understand captive deer nutritional requirements

Nutritional requirements: daily and seasonal feeding cycles; metabolic changes with sex, age, breeding and season, availability of cover, weather; response to stress; energy requirements; protein requirements

Meeting nutritional requirements: pasture; stocking rates; forms of supplementary feed (eg silage, straw, root crops, fruit, and artificial supplements); feeding methods (eg open ground, feeders, troughs, racks, creep feeding); use of feed to control deer movement or for capture; health and safety; PPE

Calculating requirements: MJME system; feed values; pasture seasonal growth and mass; feed unit standards by age, sex and season; costs

4 Know the humane capture, handling and culling of deer

Reasons for catching deer: incident/accident, scientific, educational; translocation; live sales; regular veterinary treatment; identification eg tagging of young; condition scoring; regular monitoring; antler removal

Capture methods: corral; netting (long and drop nets); tranquilisation; deer leaps

Capture planning: appropriate methods; manpower; equipment eg crushes, races, handling pens, dart guns; transport; licensing; legislation; training; preparing deer for capture; timing; driving deer and deer movements; lairage; restraint methods; separation of non-target animals; potential injury; health and safety

Culling: individual selection; larder requirements; meat hygiene regulations, typical carcass weights; carcass standards; relevant current legislation eg Welfare of Animals (Transport) Order 1997, Tuberculosis (Deer) Order 1989, Tuberculosis (Deer) (Amendment) Order 1993, Movement of Animals (Records) (Amendment) 1989

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 compare deer biology with that of given domesticated livestock [IE, RL]	**M1** explain how specified deer species have adapted to captive management	**D1** evaluate the suitability of a given captive environment for a selected deer species
P2 compare deer ecology with that of given domesticated stock [IE, RL]		
P3 compare deer behaviour with that of given domesticated stock [IE, RL]		
P4 carry out deer production planning [IE, CT, SM]	**M2** explain principles and practices of planned captive deer management	
P5 plan deer production record keeping systems [IE, CT, SM]		

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:**
P6 discuss deer nutritional requirements [IE, CT, SM]	**M3** create feeding and stocking plans for captive deer in given scenarios	**D2** evaluate selected captive deer management plans suggesting valid improvements
P7 explain how and why deer nutritional requirements change throughout the production cycle [IE, CT, SM]		
P8 outline how the nutritional requirements of deer are met in a captive environment [IE, CT, SM]		
P9 plan humane culling, capture and handling of deer [IE, CT, EP]	**M4** explain the rationale and methods for deer capture, culling and handling	
P10 describe deer production planning carried out [RL, TW, SM]		
P11 outline legislation relevant to the culling and handling of captive deer [IE]		

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 assessments, written assessment, visits to suitable collections and will link to industrial experience placements.

Where used to support this unit, work experience placements should be monitored regularly to ensure the quality of the learning experience. Work experience placement supervisors and learners should be made aware of the requirements of the unit prior to any work-related activities, so that learners can have the opportunity to gather naturally occurring evidence. For example, learners may have the opportunity to take part in deer handling. They should be encouraged to ask for observation records and/or witness statements to be provided as evidence of this. Photographic and/or video evidence may also be useful.

Visiting expert speakers could add to the relevance of the subject. For example, a deer park manager could talk about their work, the situations they face and the methods they use. Learners are expected to observe safe working practices and environmental good practice in all practical activities.

Health and safety and biosecurity issues related to working with animals in an outdoor environment must be stressed and regularly reinforced, and risk assessments must be undertaken prior to all practical activities and before learners visit any outdoor site or handle animals. Adequate PPE must be provided and used following the production of appropriate risk assessments. Learners must be made aware of the dangers and symptoms of enzootic diseases.

The learning outcomes are all linked. Every opportunity should be used to help learners make connections between learning outcomes and other related units to gain a fuller understanding of the subject area.

Learning outcome 1 covers the biology, ecology and behaviour of deer in a captive environment. Delivery is likely to include site visits to see deer in a range of settings, supplemented by theory sessions and independent learner research.

Learning outcome 2 covers the selection and planning of appropriate deer production and record keeping systems. Learners will study the methods used and associated activities commonly used to sustain deer in a captive environment. Possible examples of production systems could include red deer on a deer farm for breeding stock production, or fallow deer in a deer park for venison production. It will be helpful for learners to see at first hand examples of records and recording systems used.

Learning outcome 3 deals with the nutritional requirements of captive deer. Delivery is likely to include class-based sessions where learners calculate nutritional requirements and how they may be met. Learners should be encouraged to consider the efficiency of nutritional provisions against the costs involved.

Learning outcome 4 looks at the planning for capture, handling and culling of deer. Delivery methods could be varied, including formal lectures, supervised practicals and site visits. The legislative framework in which deer managers work should be referred to where appropriate. Visiting expert speakers could add to the relevance of the subject. For example, a deer manager could talk about their work, the situations they face and the methods they use.

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 to the unit, structure and programme of assignments.
Assignment 1: Captive Deer (P1, P2, P3, M1) Tutor introduces the assignment brief.
Formal input – deer biology.
Site visit and discussion – deer ecology and behaviour.
Independent learner research – comparisons with other domesticated livestock.
Site visit and formal input – adaptations of deer to captive management.
Prepare and present materials for display.
Assignment 2: Deer Production Planning (P4, P5, M2, D1) Tutor introduces the assignment brief.
Formal input – planning, aims and objectives.
Formal input – principles and practices.
Independent learner research activities and completion of worksheets.
Class based activity – production systems and record keeping.
Guest speaker – planning deer production systems.
Independent learner research activities and completion of worksheets.
Prepare and present materials for plan and record keeping systems.
Assignment 3: Deer Nutrition (P6, P7, P8, M3) Tutor introduces the assignment brief.
Formal input – nutritional requirements at different ages and stages.
Classroom activity – calculating nutritional requirements, practical feeding implications.
Classroom activity – selecting rations, planning stocking rates.
Independent learner research and assessment completion.
Assignment 4: Deer Handling (P9, P10, P11, M4, D2) Tutor introduces the assignment brief.
Formal input – reasons for catching deer, catching methods.
Visiting speaker – capture planning and culling.
Formal input – legislation.
Practical activities – deer handling.
Prepare and present materials for information booklet and poster.
Unit review.

Assessment

For P1, P2 and P3, learners are expected to compare deer biology (P1), ecology (P2) and behaviour (P3) with that of given domesticated livestock. Tutors should identify livestock comparisons which will allow clear contrasts to be drawn with deer. As a minimum learners should provide evidence covering three deer and two contrasting livestock. Evidence may be an illustrated report, leaflet, presentation or poster clearly showing the similarities and differences.

P4 requires learners to carry out deer production planning to meet given objectives. The objectives may be given by the tutor or agreed through discussion with the learner. The production plan should include timescales for management and husbandry activities and cover the range of practices shown in the unit content.

For P5 learners are required to plan deer production record keeping systems. Assessment of this criterion is likely to be linked with P4 and learners will need to identify the record keeping systems required. Evidence could be in the form of a written plan, annotated to show the record keeping requirements.

Assessment of P6, P7 and P8 is likely to be linked. For P6 learners must discuss the nutritional requirements of captive deer and for P7 explain how and why deer nutritional requirements change throughout the production cycle. This should address age and season. P8 requires learners to outline how these nutritional requirements are met in the captive environment. These criteria could be assessed by means of the production of an information booklet on the nutritional requirements of captive deer.

P9 requires learners to plan humane culling, capture and handling of deer. Tutors should identify the scenario used, which could cover park or farmed deer. As a minimum, learners should provide evidence for covering two scenarios of culling, capture and handling. Assessment could be presented in the form of an illustrated plan.

P10 requires learners to describe deer production planning carried out. Evidence could be in the form of a detailed written diary or log which describes deer production planning undertaken for P9.

For P11 learners must outline the legislation relevant to the culling and handling of captive deer. Assessment could take the form of a poster, written report or leaflet.

For M1, learners must explain how specified deer species have adapted to captive management. They should also be able to differentiate between species, using knowledge of the individual species ecology and behaviour to determine which species are best able to adapt to captive management. Evidence may be an extension of work completed for P1, P2 and P3.

M2 requires learners to explain the principles and practices of planned captive deer management. This is likely to be an extension of the planning activities carried out for P4 and P5, where learners explain the reasons for the components of their plan.

For M3, learners are required to create feeding and stocking plans for captive deer in given scenarios. Tutors should identify a minimum of three different scenarios or agree them through discussion with learners. Learners are expected to match the nutritional requirements of deer with the most appropriate foodstuffs and create a feeding plan which considers, for example, the suitability of foodstuffs, seasonal availability, and indoor and outdoor feeding methods.

M4 requires learners to explain the rationale and methods for deer capture, culling and handling. This is likely to be an extension of P9, P10 and P11 and may take the same format.

D1 requires learners to evaluate the suitability of a given captive environment for a selected deer species. Tutors should identify the captive environment and species of deer selected or agree it through discussion with the learner. Evidence could be linked to M1 and M2 and presented in the same format.

D2 requires learners to evaluate selected captive deer management plans, making suggestions for valid improvements. Tutors could provide the management plans, which should include plans for feeding and handling, or the evaluation could be based on work produced for M3 and P9. Evidence for this could be presented as a short report or verbal presentation.

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, M1	Captive Deer	You work as an assistant at a large deer park. The deer park is holding an open day for year 11 pupils from schools in the area. You have been asked to produce information for a display about captive deer. Research and provide information which compares the biology, ecology and behaviour of captive deer with that of given domesticated livestock. You should explain how specified deer species have adapted to captive management.	Research. Display. Written evidence.
P4, P5, M2, D1	Deer Production Planning	The deer park intends to set up a new deer park on land it has acquired nearby. You have been asked for your input into the planning of the park. Produce a deer production plan and design deer production record keeping systems. Include an explanation of the principles and practices of captive deer management. Evaluate the suitability of the proposed new deer park for a selected deer species.	Plan. Record keeping systems. Report.
P6, P7, P8, M3	Deer Nutrition	The staff that will be running the new park will need some advice on the nutritional needs of the captive deer. Produce a guide (in the form of an information booklet) to the nutritional requirements of captive deer. You should also explain why the nutritional requirements of deer change throughout the production cycle. Outline how their nutritional requirements can be met in the captive environment. You also need to create feeding and stocking plans for three different scenarios.	Information booklet.
P9, P10, P11, M4, D2	Deer Handling	To assist the staff who will be running the new park, produce an illustrated plan which shows how to humanely cull, capture and handle deer. Include a description of the planning carried out together with an explanation of the rationale and methods planned for capture, culling and handling. Include an outline of the legislation relevant to the culling and handling of captive deer. Your manager has also asked you to complete a briefing evaluating deer management plans already proposed for the new park, and suggesting improvements.	Illustrated plan. Management briefing.

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
Introductory Deer Management	Undertaking Commercial Deer Management
	Understand Deer Management

Essential resources

Access to deer parks and farms for visits and supervised practical activities will be required. For any visits, learners will need appropriate PPE, transport and first aid kit. Tutors delivering this unit should be competent and experienced deer managers or livestock managers. Ideally they should have recent industrial experience within deer management or show evidence or regular contact with the industry and/or technical updating.

Employer engagement and vocational contexts

Visits to deer parks and talks from local experts, such as deer park managers, and relevant work experience placements will enhance the delivery of this unit.

Indicative reading for learners

Textbooks

Barony College ATB Landbase – *An Introduction to Red Deer Farming in Britain* (Creedon Publications, 1997) ISBN: 978 – 1899316502

Carne P – *Deer of Britain and Ireland: Their History and Distribution* (Swan Hill Press, 2000) ISBN 978 – 1840370911

Chaplin R – *Wild Deer in Britain* (Jarrold Publishing, 1977) ISBN: 978 – 0853067214

Chapman D and Chapman N – *Fallow Deer: Their History, Distribution and Biology SecondEdition* (Coch y-Bonddu Books, 1997) ISBN 978 – 0952851059

Chapman N – *Fallow Deer* (Mammal Society, 1984) ISBN 978 – 0904614145

Clutton-Brock T and Albion S – *Red Deer in the Highlands: Dynamics of a Marginal population* (Wiley Blackwell, 1989) ISBN 978 – 0632022441

Clutton-Brock T and McIntyre N – *Red Deer* (Colin Baxter Photography, 1999) ISBN 978 – 1900455572

De Nahlik A – *Management of Deer and Their Habitat: Principles and Methods* (Coch-y-Bonddu Books, 1992) ISBN 978 – 0907519010

Fletcher J – *Introduction to Deer Farming* (British Deer Farmers' Association, 1994) ISBN 978 – 0951150443

Mayle B.A. – *Muntjac Deer, their Biology, Impact and Management in Britain* (Forestry Commission, 1995) ISBN 978 – 085538350

Prior R – *Trees and Deer: How to Cope With Deer in Forest, Field and Garden* (Swan Hill Press, 1994) ISBN 978 – 1853104329

Prior R – *The Roe Deer: Conservation of a Native Species* (Swan Hill Press, 1995) ISBN 978 – 1853105325

Prior R – *Deer Watch – A Field Guide* (Swan Hill Press, 2007) ISBN 978 – 1846890130

Putman R – *Sika Deer* (Deer Study and Resource Centre, 2000) ISBN 978 – 0902754256

Putman R – *The Natural History of Deer* (Cornell University Press, 1993) ISBN 978 – 0801422836

Putman R and Lanbein J – *The Deer Manager's Companion* (Swan Hill Press, 2003) ISBN 978 – 1904057031

Ratcliffe P – *The Management of Red Deer in Upland Forests* (Stationery Office Books, 1987) ISBN 978 – 0117102101

Red Deer Commission – *Red Deer Management – A Practical Book for the Management of Wild Red Deer in Scotland* (Stationery Office Books, 1992) ISBN 978 – 0117103108

Smith-Jones C – *Muntjac: Managing an Alien Species* (Coch-y-Bonddu Books, 2004) ISBN 978 – 1904784029

Spilsbury L and Spilsbury R – *Wild Britain: Deer* (Heinemann Library, 2004) ISBN 978 – 0431039831

Whitehead G – *The Whitehead Encyclopaedia of Deer* (Swan Hill Press, 2008) ISBN 978 – 1853103629

Journals

Deer	The British Deer Society Journal
Deer Farming	The British Deer Farmers Association Journal
The Deer Farmer	New Zealand Deer Farmers Journal

Websites

www.basc.ork.uk	British Association for Shooting and Conservation
www.bdfa.co.uk	British Deer Farmers Association
www.bds.org.uk	The British Deer Society
www.defra.gov.uk	Department for Environment, Food and Rural Affairs
www.environment-agency.gov.uk	Environment Agency
www.naturalengland.org.uk	Natural England
www.opsi.gov.uk	Office of Public Sector Information
www.sac.ac.uk	Scottish Agricultural College
www.thedeerinitiative.co.uk	The Deer Initiative

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	reporting on the biology, ecology and behaviour of captive deer comparing deer biology, ecology and behaviour to that of other livestock planning deer production and record keeping systems
Creative thinkers	identifying nutritional requirements of captive deer planning the humane culling, capture and handling of deer
Reflective learners	comparing deer biology, ecology and behaviour to that of other livestock describing own deer production planning activities
Team workers	taking responsibility for the environment carrying out practical activities safely
Self-managers	selecting appropriate tools and equipment for practical activities carrying out practical tasks safely
Effective participators	planning the humane culling, capture and handling of deer.

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	investigating key points of current legislation relevant to the culling and handling of captive deer
Creative thinkers	applying techniques to the management of captive deer
Reflective learners	evaluating own performance action planning target setting for future activities
Team workers	receiving and giving peer help and support during tasks
Self-managers	Working towards goals when carrying out practical activities
Effective participators	investigating problems that occur when carrying out practical activities.

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 ICT systems in order to research information for the assignments
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	action planning and monitoring work that needs to be completed
Manage information storage to enable efficient retrieval	saving information into files and folders
Follow and understand the need for safety and security practices	safely using ICT systems – sitting correctly at the computer, keeping food and drink away from computer equipment
Troubleshoot	
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	carrying out research for assignments
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	producing a display designing an illustrated poster producing a record keeping system
Bring together information to suit content and purpose	creating documents from research for assessment activities
Present information in ways that are fit for purpose and audience	creating documents from research for assessment activities
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	

Skill	When learners are ...
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	calculating feeding and stocking requirements for captive deer
Identify the situation or problem and the mathematical methods needed to tackle it	
Select and apply a range of skills to find solutions	designing a deer production plan
Use appropriate checking procedures and evaluate their effectiveness at each stage	calculating feeding and stocking requirements for captive deer
Interpret and communicate solutions to practical problems in familiar and unfamiliar routine contexts and situations	
Draw conclusions and provide mathematical justifications	calculating feeding and stocking requirements for captive deer
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	presenting information on biology, ecology and behaviour of captive deer
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	researching for information about the biology, ecology and behaviour of captive deer
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	reporting on the biology, ecology and behaviour of captive deer writing an evaluation on captive deer management scenarios.