

Unit 29: Undertaking Pig Production

Unit code:	F/600/9147
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 pig 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.

The aim of this unit is to develop learners understanding of pig production systems coupled with the husbandry and managerial skills needed to work in the pig sector.

● Unit introduction

To be successful, pig producers need to be aware of the factors affecting the pig industry, domestically and globally, together with the animal husbandry skills needed to survive in an environment where the market price for pig products is constantly changing.

Learners will research different pig production systems, indoor and outdoor pigs, weaner production, rearing and fattening, and the associated pig accommodation. They will have a clear understanding of the economic and environmental factors that contribute to decision making in pig production. This will allow learners to make informed decision in relation to future pig production.

Learners will look at the husbandry and management of the breeding and the growing pig. They will understand the theory of animal health and welfare and welfare legislation associated with the growing and breeding animal. The nutritional requirements of pigs at different stages in the production cycles, including feed ingredients and ration formulation, are also looked at.

Learners will have the opportunity to develop the husbandry skills associated with the pig breeding cycle and growing pigs and gain experience of disease diagnosis, prevention and treatment and how this is linked to the production cycle, pig housing and nutrition.

● Learning outcomes

On completion of this unit a learner should:

- 1 Understand the major pig production systems
- 2 Understand the management of the breeding pig
- 3 Understand the management of the growing pig
- 4 Be able to perform relevant pig husbandry techniques.

Unit content

1 Understand the major pig production systems

Overview of pig production: current pig numbers and trends in the UK and globally; production systems eg breeding, indoor and outdoor units; rearing systems and methods; housing systems for breeding, growing and finishing stock for indoor and outdoor systems; breeds, hybrids, genotype and pig genetics; site requirements for outdoor pig units eg climate, soil type, topography

Factors affecting choice of system: eg financial, economic, marketing, availability of services, current farming practice, personal preference, available labour, environmental factors; current relevant legislation and codes of practice eg Welfare of Farmed Animals (England) (Amendment) Regulations 2003, Welfare of Animals (Transport) (Amendment) Order 1999, Animal Welfare Act 2007, DEFRA codes relevant to pigs; other factors influencing a pig enterprise eg current farm animal welfare requirements, biosecurity measures in pig production eg disinfectant foot dips, lorry wheel wash; environmental impact, pollution control, health and safety; finance, market price, service charges; physical impacts, disease, production performance, environmental factors

2 Understand the management of the breeding pig

Husbandry and management of the breeding pig: planning records, benchmarking; the reproductive cycle (artificial insemination (AI)), natural insemination, heat observation, optimum time for service); boar, sow and gilt management during the breeding cycle, fertility and infertility; replacement breeding stock, culling policy; nutritional requirements for breeding animals and reproduction; feeding systems and techniques; common bacterial, viral and parasitic diseases eg erysipelas, scour; disease diagnoses, prevention and treatment in breeding pigs; management practices to maintain good herd health eg animal health plans, regular vet visits, vaccination policy; differences between indoor and outdoor breeding management; health and safety; PPE

3 Understand the management of the growing pig

Husbandry and management of the growing pig from piglet to finisher: assessing performance charts and records (physical, financial, movement licences, veterinary and medical, herd performance, sales invoices); reasons for records eg legal, operational, managerial; feeding and nutrition for growth rate and performance, importance of protein and lysine in pig diets; adverse effects of inadequate and prohibited feed ingredients and toxins; feed formulation; feeding systems, wet and dry feed systems; health and safety; PPE

4 Be able to perform relevant pig husbandry techniques

Routine husbandry: cleaning out; feeding and watering; routine checks, health, disease diagnoses, heat detection; unit hygiene, cleanliness and tidiness; veterinary and medical procedures and records; isolation of replacement stock; movement records; risk assessments; health and safety

Stock tasks: associated with breeding pigs eg assisting at farrowing, serving, pregnancy diagnosis, administering of veterinary and medical products; animal health plan; health and safety; personal protective equipment (PPE); associated with growing pigs eg teeth clipping, tail docking, injecting, weighing

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 the major pig production systems including intensive and extensive [IE]	M1 describe the factors that determine the choice of pig production system	D1 discuss factors that are likely to impact on the physical and financial performance of a pig enterprise
P2 review the factors that determine the choice of each system including: <ul style="list-style-type: none"> ◇ accommodation ◇ location ◇ markets ◇ environmental ◇ resources [IE]	M2 discuss the nutrition and feeding of a sow, a gilt and a boar during a breeding cycle	D2 justify a breeding stock replacement plan for a pig herd
P3 explain the husbandry of breeding pigs [IE]		
P4 discuss common problems associated with breeding pigs [CT, SM]		
P5 evaluate factors which determine sow productivity [SM]		
P6 explain the husbandry of the growing pig	M3 explain how the nutrition of the growing pig influences health, growth rate and carcass quality	
P7 discuss common problems associated with growing pigs	M4 produce a health plan for a pig 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:
P8 evaluate the factors which influence the growth of pigs including: <ul style="list-style-type: none"> ◇ accommodation ◇ location ◇ markets ◇ environmental ◇ resources 		
P9 carry out routine care and associated stock tasks according to codes of practice and legislation		
P10 plan a layout for a pig unit from given information		
P11 analyse selected physical and financial records to assess performance of a pig herd.		

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 should use as wide a range of techniques as possible. This could include lectures, discussions, seminar presentations, supervised pig livestock practicals, site visits, work placements, internet and/or library-based research. Delivery should stimulate, motivate, educate and enthuse learners.

Work placements should be monitored regularly to ensure the quality of the learning experience. It would be beneficial if learners and supervisors were made aware of the requirements of this unit before any work-related activities are undertaken so that naturally occurring evidence can be collected at the time. Learners should ask for observation records and/or witness statements to be provided as evidence of this.

Visiting expert speakers could add to the relevance of the subject for learners. For example, pig consultants, pig breeding managers or large animal veterinarians could talk about their work, the situations their clients face and the systems and methods they use.

Tutors should stress the importance of health and safety, animal welfare, bio-security issues relating to working with and around livestock regularly and the need to manage the resource using approved methods. Risk assessments must be undertaken before any practical activities and before learners visit any pig units. Following the production of suitable risk assessments appropriate PPE must be provided and used.

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

Access to a range of pig units will give learners the opportunity to witness various methods of pig production, feeding systems, building types and management techniques.

Learning outcome 1 covers the background knowledge and issues relating to pig production and production systems. This is likely to be delivered through formal lectures, discussion, site visits and independent learner research. Learners will be aware of the systems used for pig production, and the differences between them. Factors that determine pig production and production systems will be examined.

Learning outcomes 2 and 3 are linked. They look at the husbandry skills involved with, and the management of, breeding and growing pigs. Pig nutrition and feed formulation are also covered.

Delivery techniques should be varied. It is expected that formal lectures, demonstrations, supervised pig husbandry and livestock handling practical sessions, and site visits form part of the delivery for these learning outcomes.

Learning outcome 4 focuses on the practical aspects of pig health and welfare, disease diagnosis and control, and stock tasks associated with both breeding and growing pigs. Learners are expected to demonstrate the full range of pig husbandry skills associated with breeding and growing pigs. Learners will gain knowledge and practical experience while carrying out husbandry and stock tasks.

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 overview of unit.
Introduction to pig production systems/trends.
Breeds/hybrids.
Assignment 1: Pig Production Systems (P1, M1)
Tutor introduces assignment brief.
Independent research to complete assessment.
Theory – routine husbandry tasks.
Practical husbandry tasks (practice and assessment throughout the unit).
Theory – introduction to pig nutrition.
Practical stock tasks (Introduction).
Assignment 5: Design of a Pig Unit (D1)
Tutor introduces assignment brief.
Hand in after session on growing pigs.
Time to complete (sections can be completed after each relevant theoretical husbandry input).
Assignment 2 – Pig Husbandry (P2, P3, P4, P5, P6, P7, P8, M2, M3, M4, D2)
Tutor introduces assignment brief.
Theory – breeding stock – stock selection; dry sow, gilt and boar management, service management including feeding.
Practical related to service management etc.
Theory – breeding stock – caring for the pregnant sow including feeding.
Theory – breeding stock – farrowing to weaning management including feeding.
Practical related to farrowing to weaning tasks.
Theory – growing pigs (different production systems).
Practical related to growing pigs.
Assignment 3 – Practical Husbandry and Stock Tasks (P9, P10)
Outdoor pig keeping.
Assignment 4: Performance Analysis (P11 D3)
Tutor introduces assignment brief.
Time to complete.
Theory – pig economics.
Unit review.

Assessment

Assessment methodology should reflect the opportunities provided by the range of delivery methods used. It should involve practical and written assessments, visits to suitable pig units and, ideally, will link to work experience placements.

For P1 and P2, learners must provide information on major pig production systems and the factors determining the choice of each system. They are expected to cover the range of systems including indoor, outdoor and rearing systems. Evidence could take the form of a pictorial presentation with notes (possibly using appropriate software or an overhead projector).

P2 could be assessed directly by the tutor during practical activities. If this format is used then suitable evidence from guided activities are observation records completed by learners and the tutor. If assessed during a placement, witness statements should be provided by a suitable representative and verified by the tutor.

P3, P4 and P5 require learners to provide information on the husbandry of breeding animals and litters throughout a breeding cycle. As well as discussing daily routines this should include breeding management, artificial insemination and natural service, pregnancy diagnosis, care of the pregnant sow or gilt and farrowing and post-farrowing care. Tutors should identify the given objectives, which are likely to be driven by the requirements of the pig unit. Where possible, to ensure assessment is fair, the size and complexity of these tasks should be the same for all learners. Evidence could be in the form of a report or assignment.

For P6, P7 and P8, learners must explain the husbandry and housing of the growing pig and talk about common problems and other factors that influence growth. This should include requirements relating to the end product of the different systems. Where possible, to ensure assessment is fair, the size and complexity of these tasks should be the same for all learners. Evidence may be in the same format as for P2.

P9 requires learners to carry out routine daily husbandry tasks and those stock tasks associated with breeding and growing livestock. Learners should ensure that their activities are in accordance with relevant welfare codes, environmental requirements and biosecurity.

For P10, learners must produce a plan for the layout of a pig unit from given information. P11 requires an analysis of physical and financial records that are used to assess pig herd performance. Evidence for P10 could link to that for P3, P4 and P5.

P11 requires learners to analyse selected physical and financial pig records to assess the performance of a pig herd and explain why such records are necessary. Learners should include movement licences, veterinary and medical records, herd performance records and sales invoices. These records should be analysed and compared with benchmark figures to identify herd strengths and weaknesses. Evidence may be in the same format as for P1.

For M1, learners must describe the factors that determine the choice of pig production systems. This can be linked directly to work being undertaken for P1 and evidence may be in the same format as for P1.

For M2, learners must discuss the nutrition and feeding of a minimum of one sow, one gilt and one boar. Tutors should identify the pigs or agree it through discussion with learners. Where possible, to ensure assessment is fair the size and complexity of the tasks should be the same for all learners. Learners must take account of dry sow and lactating sow nutritional requirements and feed amounts. Evidence may be in the same format as for P1 or it could be collected orally during practical activities using observation records or witness statements.

M3 requires learners to explain how the nutrition of the growing pig influences health, growth rate and carcass quality. Learners should include wet and dry feeds, feed values, and ration formulation. This could be linked to work for M2. Evidence may be in the same format as for P1 or it could be collected orally during practical activities using observation records or witness statements.

For M4, learners must provide information on the major disease risks to pigs and how selected diseases/parasites can be prevented and treated in the form of a health plan for a pig unit. Tutors should identify the diseases/parasites or agree them through discussion with learners. Where possible, to ensure assessment is fair, the size and complexity of the tasks should be the same for all learners. Evidence should reflect practical application to a given type of pig production.

For D1, tutors should identify a system of pig production or agree it through discussion with learners. Learners must discuss factors that are likely to impact on the physical and financial performance of that pig enterprise. Learners should cover all aspects such as financial impacts, market price, service charges, labour costs, physical impacts, disease, production performance and environmental factors. Learners may contextualise their evidence as described in P1 and M1. Evidence may be in the same format as for P1.

D2 requires learners to justify a breeding stock replacement plan for a herd of pigs. Learners should use production benchmarks such as number of litters per sow per year, piglets born per sow per year and piglets weaned per sow per year. This can be linked to work for D1 and D3. Evidence may be in the same format as for P1.

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, M1	Pig Production Systems	Produce an overview of the different pig production systems and the factors determining the choice of each.	Presentation through poster/PowerPoint/oral or combination.
P2, P3, P4, P5, P6, P7, P8, M2, M3, M4 D2	Pig Husbandry	Produce a report on the husbandry techniques for breeding and growing pigs. This should include an explanation of the nutritional requirements at all stages of production with sample rations. You are also required to produce a plan for replacing breeding stock.	Written illustrated evidence.
P9,P10	Routine Husbandry Tasks and Practical Stock Tasks	Routine husbandry and practical livestock tasks to be assessed by tutor/work supervisor.	Duty reports from works supervisor or practical assessment by tutor. Witness/observer statements. Practical assessment.
P11, D3	Performance Analysis	You are to analyse the performance of a selected production unit from a set of data provided by your tutor/work placement supervisor.	Data analysis. Written report.
D1	Design of a Pig Unit	Using an existing production area, for which modifications can be recommended, or an area allocated by your tutor design a pig unit for an identified production system. Justification of the design in terms of welfare requirements, building materials, materials handling, etc. to be included.	Annotated plan. Written information to support the plan.

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 LP24.1 Establish appropriate conditions for livestock Element LP24.2 Monitor and maintain appropriate conditions for livestock Element LP28.1 Establish, implement and evaluate a heard breeding plan Element LP28.2 Enable livestock to initiate pregnancy Element LP28.3 Monitor and manage animals during gestation Element LP29.1 Monitor and maintain livestock during parturition Element LP29.2 Care for livestock after parturition
	Understand Animal Anatomy and Physiology
	Undertake Agricultural Livestock Production

Essential resources

Learners will need access to a productive pig unit which gives them the opportunity to observe demonstrations and carry out tasks associated with pig production. Different age groups ranging from piglets through to weaners, growers and finishers must be available. Learners must also have the opportunity to handle breeding stock and carry out associated tasks.

All equipment required for carrying out related tasks must be in good working order and suitable for the purpose of the job. Animal welfare concerns mean that learners must be supervised while carrying out stock tasks. Health and safety must be considered at all time so as not to endanger learners. Access to production and breeding records will help learners with management issues and planning.

Tutors delivering this unit should be competent and experienced in pig production and husbandry tasks. Ideally, they should have recent industrial experience within the pig 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 background knowledge and practical skills learners need to gain employment in the pig production industry.

Access to work placements and/or site visits should be an integral part of the delivery of this unit. In this way, employers and industry practitioners are able to have an input into learner development. This input can be enhanced if learners and placement supervisors are aware of the unit requirements before any work-related activities are undertaken so that naturally occurring evidence can be acknowledged.

Visiting expert speakers from industry can add further relevance to the subject for learners.

Indicative reading for learners

Textbooks

Close WH and Cole D J A – *Nutrition of Sows and Boars* (Nottingham University Press, 2000) ISBN 1897676530

Gadd J – *Pig Production Problems; John Gadd's Guide to their Solutions* (Nottingham University Press, 2003) ISBN 1897676344

Garnsworthy P and Wiseman J (editors) – *Recent Developments in Non-Ruminant Nutrition* (Nottingham University Press, 2006) ISBN 1904761348

Muirhead and Alexander – *Managing Pig Health and the Treatment of Disease* (Nottingham University Press, 1999) ISBN 0956015009

Muirhead and Alexander – *Pocket Guide to Recognising and Treating Pig Disease* (Nottingham University Press, 1999) ISBN 0953015017

Muirhead and Alexander – *Pocket Guide to Recognising and Treating Pig Infertility* (Nottingham University Press, 2000) ISBN 0953015033

Smith P, Crabtree H and Bird N – *Perfecting the Pig Environment* (Nottingham University Press, 2009) ISBN 190476181

Soffe R and McConnell P – *The Agricultural Notebook, 20th Edition* (Blackwell Science, 2003) ISBN 0632058293

Taylor D – *Pig Diseases, 7th Edition* (Farming Press, 1999) ISBN 095069326X

Other publications

DEFRA – *Code of Recommendations For the Welfare of Animals Pigs* (Defra Publications, 2003)

DEFRA – *Welfare of Farmed Animals (England) Regulations* (Government Legislation, 2007)

Journal

Pig World

Websites

www.bpex.org

British Pig Executive

www.defra.gov.uk

Department for Environment Food and Rural Affairs

www.npa-uk.net

National Pig Association

www.thepigsite.com

The Pig Site

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 ...
Creative thinkers	applying techniques when carrying out routine husbandry tasks
Self-managers	carrying out practical care duties.

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 pig production systems
Creative thinkers	problem solving.

● Functional Skills – Level 2

Skill	When learners are ...
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	using the internet to research information on pig production systems
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	producing a presentation on production systems
Present information in ways that are fit for purpose and audience	producing a presentation on production systems producing a plan of a pig unit
Mathematics	
Identify the situation or problem and the mathematical methods needed to tackle it	interpreting welfare codes in terms of space requirements producing a plan of a pig unit – space allocation
Select and apply a range of skills to find solutions	analysing selected physical and financial records to assess performance
Interpret and communicate solutions to practical problems in familiar and unfamiliar routine contexts and situations	producing results from the analysis of physical and financial information
English	
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	researching for presentations
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	producing written presentations for assessments.