

Unit 9: International Poultry Production

Delivery guidance

There are many different areas for employment within the poultry production sector. This unit will give learners the understanding and the specific skills required to pursue a career in this sector.

It will enable learners to understand the different poultry production systems and the associated correct diet control in order to maintain a high level of health and production. You will carry out routine tasks with the learners within various poultry production systems, reviewing current welfare and husbandry standards.

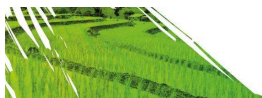
Ideally you and the learners will carry out practical tasks with different types of poultry in different types of production systems to give learners the full experience of these varying systems.

Approaching the unit

The overall focus of this unit is to give your learners all the skills required in order to work effectively in the poultry production industry, for the farming of birds either for consumption or as egg producers. In order to inspire your learners, site visits are of the utmost importance and seeing as many different production methods as possible is vital. Where possible talking to related industry representatives will give learners a firm understanding of the point of poultry production. Butchers, chefs, incubator manufacturers, hawkers and geneticists are all intrinsically linked to this industry and may well give a different angle of approach to the delivery of this unit. Visiting speakers add an interesting outlook on the subject and where a site visit may not be viable, a representative of a specific part of the industry may well be just as good. Consider all options available to you.

While site visits are strongly advised, perhaps not all methods of production may be available to you and as such formal lectures form the other side of the delivery of your learners' education. Prepare presentations a few weeks in advance of your delivery with a view to adding relevant information which may add impetus to something delivered in the weeks before, in the news or relevant to upcoming or developing legislation.

Some materials which will be of service to you during the delivery of this unit may include incubators, egg turners and candlers. With these you could incubate some eggs and show learners the difference week by week to the growing embryos. Brooders and heat lamps will be required for rearing chicks, alongside feeders and drinkers, as well as a housing system. Ensure that you have a home for any hatched birds at the summation of the delivery. Scales will be useful to look at growth of poultry over a period of time. Perhaps you could compare the daily live weight gain of a brood split in two, fed on different diets over time.



Assessment model

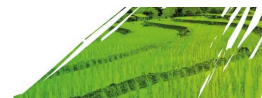
Learning aim	Key content areas	Recommended assessment approach
A Investigate poultry production systems	A1 Poultry production systems A2 Housing requirements A3 Selection of animals for market and the role of performance indicators	A written report on a selected poultry production system and the production 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 Nutritional problems	A portfolio of evidence, to include: <ul style="list-style-type: none"> • planning documents • evidence of carrying out routine poultry husbandry and feeding tasks safely to meet current standards and health and production targets.
C Carry out routine husbandry of poultry during the production cycle to meet current welfare and husbandry standards	C1 Routine husbandry C2 Breeding poultry C3 Assessing health and welfare	

Assessment guidance

There are two assessments for this unit, the first a written report and the second a portfolio of evidence. In order to best deliver these assessments to the learners, they should each have a separate assignment brief produced.

The report should be written up as a formal document by learners on a production system of their choosing. This should include species and breed information, feed, housing, costs, markets and other relevant information. Higher achieving learners should use a recognised referencing system to include works by others to back up or give evidence for what they are discussing. Learners may wish to use a specific business they have visited or worked at to form the basis for their report; however, all aspects of the system must be discussed to ensure learning in all fields has taken place.

The portfolio of evidence could include a diary, presentation and/or a range of pictures or videos with an explanation. It should contain documentation of the planning carried out by learners before carrying out any practical work with poultry production systems. Your centre may have a framework for planning out a practical task which could encompass risk assessment, equipment lists and a task description. Field notes should be written up formally. Higher achieving learners may well include some reflection on the practical tasks they carry out with a view to discussing methods of improvement in the future, or what further training they feel they need to correctly or more efficiently carry out a given task.



Getting started

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

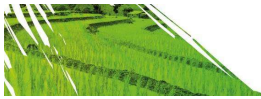
Unit 9: International Poultry Production

The poultry production industry often involves mainly three species: chickens, ducks and turkeys. It also involves a wide variety of housing and husbandry methods. To effectively deliver this unit, each of these should be visited and compared as regularly as time permits. It is important to look at poultry production systems at different stages of the life cycle of the bird.

Learning aim A – Investigate poultry production systems

A1

- Introduce the unit by having learners work in groups to produce a mind map of the different products of poultry production systems. After a given time, go around the groups and amalgamate these ideas together on to the board, filling in the blanks yourself. Include waste products and by-products.
- Take learners on site visits to different production systems. Have them take notes on everything that they see (including conditions, poultry numbers and products) with a view to referring back to these in future lectures. Where possible, compare both large- and small-scale production of the same products and have learners recognise common themes, as well as methods of avoiding waste or more financially viable methods of production through economies of scale. Ask learners to explain why they think the different systems have chosen their systems due to the factors influencing them such as finance, marketing, service availability, environment and legislation.
- Building on site visits, give formal lectures on the different types of poultry. Through the use of live examples, videos and visiting speakers, teach learners about all the different types of farmed poultry, including chickens, ducks, geese, quail, pheasants, partridges and any other poultry types at your disposal.
- Introduce biosecurity to learners and explain the importance of this to the industry. Visit other types of livestock production system and have learners draw comparisons between them and poultry units that they have visited. Discuss standstill periods, foot and wheel dips, cleaning methods and the differences between production units and breeder units. These visits can lead into a discussion of the environmental impact of poultry production. Where possible, look at slurry and manure storage systems on farms as well as how waste products are managed in poultry slaughterhouses, such as application of blood as a fertiliser to arable land. Use videos to show learners the negative effects on the environment, such as eutrophication, and what to do in the event of an environmental accident. The Environment Agency may be able to offer some help with the delivery of this, or perhaps a training day on what to do in the case of an environmental disaster may be of use to more practical learners.
- Learners should be taught to a high level of detail on the health and safety factors concerned with poultry production. The charity Yellow Wellies can offer onsite training on the risks to poultry farmers and how to best avoid injury through correct health and safety application. After some initial teaching on the subject of health and safety, take learners to a site and have them carry out a risk assessment on it, making particular comment on



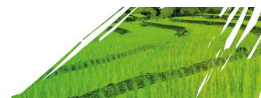
health and safety improvements to it. You should also teach learners about the associated legislation on health and safety, and then the broader aspects of legislation in poultry production.

A2

- Teach learners about the different types of housing considerations, such as free range and permanently housed poultry. Visit different production systems and give lectures on the different housing types. Point out to learners how the five freedoms are met within the systems, and to how great a level these are met in the different systems. Review the differences between meat production and egg production and go on to discuss egg collection systems and the storage thereof.
- Different production systems have different equipment requirements for their applications. Show learners the equipment used for taking measurements, ventilating housing systems and temperature logging, and how to utilise these. Some of this equipment is used to produce performance indicators in poultry. Use one of these systems to show learners how to select fat stock within a system and then go on to get them to select fat stock for kill. By looking at existing records, have learners record useful information from the findings from the performance indicators for future reference.

A3

- Give a presentation to learners on sampling technique. This is a transferable skill and increases learners' employability skills in a wide variety of areas. Discuss random sampling and explain how to find a representative sample of a range of different things. This can be carried out on efficiency or output of feeders, heaters, growth rates or health of birds. Use this to have learners carry out sampling on birds, perhaps looking at performance targets. Learners could be tasked with sampling birds to ensure they are up to the breed standard, are the correct weight for their age or are laying eggs at the correct rate.
- Give a lecture on the current regulations regarding the preparation of birds, either for market or for slaughter. Give learners examples of movement records and have them fill one in for an imaginary movement of birds. Consider other records at this time such as health and safety and general animal welfare. Explain to learners about the different storage techniques such as on a PC, hard copies or through graphs and charts. Resource storage, veterinary application, deaths and disposal of deadstock should all be reviewed during this time; show the learners the different frameworks for recording this information. Have learners produce their own recording systems to ensure learning has taken place.
- Performance indicators should be sampled with learners on different poultry types. Have them measure body weight, the variation between birds in different sheds on the same site and egg numbers against projected egg numbers, as well as egg weight, mass and quality. If access can be gained to the same poultry system over a period of weeks, the mortality, food conversion rate (FCR), fertility and hatchability can also be sampled. This should be plotted on graphs so learners can see a difference over time.



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

B1

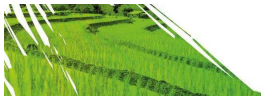
- Consider the nutritional requirements of poultry for different production methods housed in different accommodation systems. A site visit to a feed mill may be useful for this. Have a representative explain the different food types available for different breeds, ages and purposes for poultry. Look at the component feeds that are used to make up the feeds. Discuss with learners the protein, fibre, carbohydrate and energy requirements of different types of livestock and how the different component parts contain these in greater or lesser amounts. Consider the costs of these different food types as well as the environmental impacts through shipping them from abroad or from removing them from a natural food chain such as fish meal.
- The different food types should be reviewed for layers and broilers, and the financial requirements of each compared to the profits from the end products. Give learners examples of food types and where possible conduct basic lab analysis to see what the makeup of the feed is, so learners can in future ensure the food they are buying has in it what the list of ingredients says it does. This can be carried out at the centre's laboratories or a visit to a food analysis lab may be required to deliver this task.

B2

- Feeding strategies differ from system to system. Compare ad libitum delivery of foodstuffs to restricted feeding and draw conclusions on the positives and negatives of each system to poultry health, growth rates, finances and waste management. Show learners the different types of feeding and watering equipment and explain the differences and applications of them; consider price, ease of cleaning, application and maintenance. Setting up a basic feeder and drinker system will give learners some good knowledge of basic plumbing techniques, a transferable skill required in many different aspects of livestock farming.
- Feed storage systems should be explained and demonstrated to learners, with particular attention given to assessing food quality within a storage system. Correct and incorrect storage methods should be seen and food quality indicators should be compared with food which has been incorrectly stored. Address pest control, ventilation and rotation when considering feed storage systems. Methods of recording information with regard to feed are important. Explain to learners the importance of good records on feed, such as batch numbers and expiry dates. This ensures any issues with a batch can be reviewed at the mill and that food is not allowed to spoil through feeding newer stock before older.

B3

- Have a vet or nutritionist as a visiting speaker give a lecture on nutritional issues such as rickets, CLF and any others they may have experience with. Show learners pictures and videos to support these formal lectures. Link the deficiencies to the foodstuffs and explain how to treat these deficiencies. Consider the leaky barrel scenario as a strong method of delivering deficiencies to learners. This is a transferable scenario to many other aspects of farming and as such learners may have come across it before, or may go on to apply it to other areas throughout their working lives.



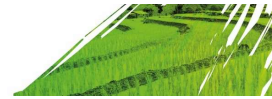
Learning aim C – Carry out routine husbandry of poultry during the production cycle to meet current welfare and husbandry standards

C1

- During site visits or at the centre's poultry production unit, have learners carry out all the practical aspects of poultry production. You could start this before poultry are introduced to a new unit by preparing the environment for accommodation. Show learners the methods required to correctly and safely clean and disinfect the environment, and the equipment which will be used by the poultry. Introduce biosecurity to the learners at this point and explain what could happen with regard to disease to poultry if these biosecurity methods were not met. Discuss with learners the PPE requirements for biosecurity and its application.
- Show learners the different bedding products available for poultry and different production methods and housing systems. When the time is right, apply the bedding material to a housing system, or where possible use more than one bedding material so learners can draw comparisons and understand the strengths and weaknesses of these different products.
- Show learners the other systems in place designed to make an environment as favourable as possible to poultry. Ventilation, temperature, humidity and lighting should all be able to be controlled by a unit worker, and learners should understand the different equipment, its application and its maintenance. You should also review stocking densities at this stage, and the associated differences these make to the poultry. Where computerised control systems are in place, show learners how to correctly use them to make environmental changes within the housing system.
- When poultry is introduced to a housing system, show learners the safe handling of poultry and how to correctly introduce water and food to them. Perform health checks on the poultry with the learners and show how to correctly apply vet and med procedures for the best and healthiest production of the poultry. Explain daily routine tasks and demonstrate to learners how to correctly restrain birds, before demonstrating skills such as feather clipping, tagging and removal of external parasites. Have a site representative discuss how staff are employed to carry out these tasks and how to plan staffing requirements for best efficiency.

C2

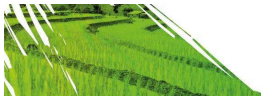
- Outside of the housing system, explain to learners the science behind breeding. By dissecting eggs at different stages of incubation, learners can see how the embryo develops within the egg. Compare different eggs and show learners the different quality aspects of them, as well as discussing the differences required for incubation and for the human food chain. Discuss the factors affecting growth and reproduction as well as the differences caused by these factors during incubation, hatching and brooding, and then the differences to chicks, poults and adult birds. Discuss the influence of environmental controls on successful breeding and rearing.
- Apply medication to poultry with learners and show them how this can be applied through water and food systems. Where possible, have a representative from a



feed mill discuss what goes into medicated feed and its purposes to farmed poultry.

C3

- Discuss health and welfare inspections on poultry, including both process and frequency. Leg health is a slightly more advanced level of inspection required for poultry. Compare leg health of poultry farmed in different systems and where possible dissect legs to compare those of poultry in full health and of those who are in poor health, as well as at different life stages.
- Have learners review other health indicators, paying particular attention to eyes, posture and movement. The vocalisations and alarm responses should be reviewed as well as egg production rate and skin condition.



Details of links to other BTEC units and qualifications, and to other relevant units/qualifications

This unit links to:

- Unit 8: Animal Production Systems
- Unit 10: Farm Livestock Husbandry
- Unit 15: Livestock Health and Diseases
- Unit 16: Livestock Nutrition.

Resources

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 Studies. Check the Pearson website (<http://qualifications.pearson.com/endorsed-resources>) for more information as titles achieve endorsement.

Textbooks

Gillespie, J – *Modern Livestock & Poultry Production*, 8th edition (Delmar, 2010) ISBN 9781428318083. A comprehensive guide covering major and minor livestock and poultry types and production systems. A definitive guide on everything you need to know to care for birds from chick to chicken.

Swayne, D – *Diseases of Poultry*, 14th edition (Wiley-Blackwell, 2019) ISBN 9781119371175. The most complete and definitive reference for all aspects of poultry diseases, this book has been fully revised and updated to offer a comprehensive survey of current knowledge.

Websites

Visit the Yellow Wellies website – a charity aimed at training people who work in the land-based sector with regard to their health and safety.

Visit the gov.uk website and search 'Poultry: on farm welfare' for the government's advice and legislation on poultry production on farms.

Visit The Old Farmer's Almanac website and search 'Raising chickens 101: How to get started' for the basics of raising chickens.

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 students to access them through the school/college intranet.