

# Poultry Factsheet - chickens

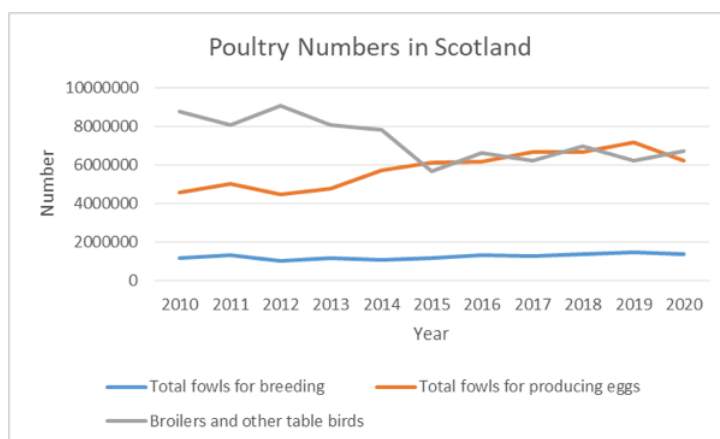
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**Poultry production is a varied, yet highly integrated sector that can broadly be split into two parts, laying (chicken egg production) and broilers (chicken meat production). According to the Scottish Governments June 2020 Agricultural Census there are 642 specialist poultry producers in Scotland.**

## Background

In 2019 the UK produced around 11,376,000,000 eggs, 12% of which were produced in Scotland. In 2018, Scotland's egg production was valued at over £88 million.

Chicken meat is the UK's most popular meat with the average British consumer consuming 35kgs of chicken per year. In 2018, in Scotland the tonnage of meat produced was valued at over £59 million. In 2019, the UK as a whole produced 1.64 million tonnes of broiler chicken meat, a decrease of 2.1% from 2018.

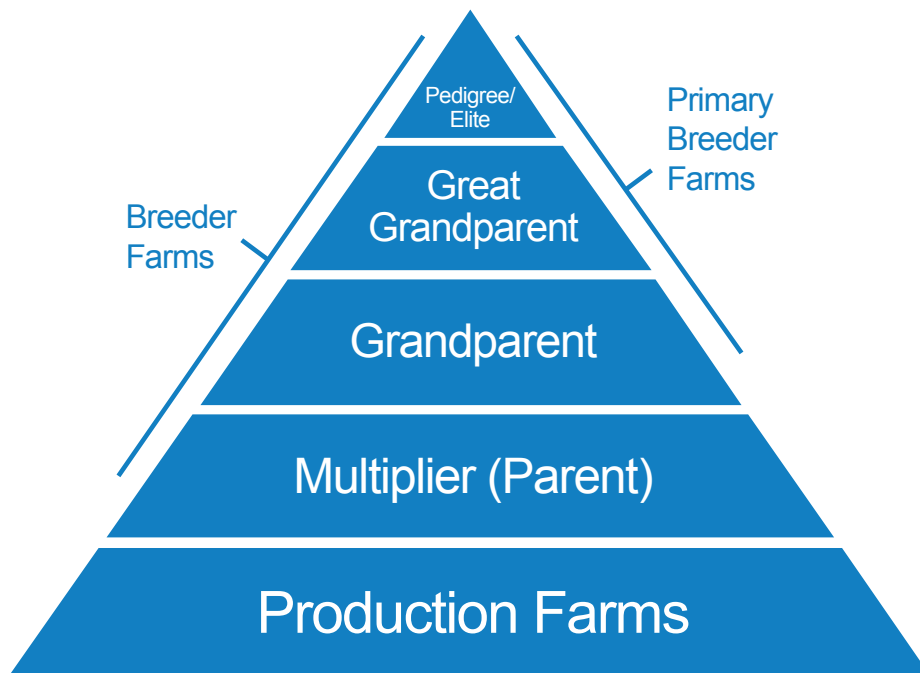


*Adapted from ScotGov Agricultural Census 2010-2020*

As the above graph shows, since broiler numbers took a sharp fall in 2015 to a record low, this was due to the closure of several processing facilities in Scotland. However, broiler numbers have stabilised since 2015. Layer numbers have broadly increased since 2010. However, layer numbers did sharply decrease in 2020, by 15%, this has been attributed to industry disruption due to Covid-19.

## Industry structure

The poultry industry tends to be formed in a pyramid structure, with high value pedigree genetics at the top moving down through generations until the bottom “production” level of the pyramid where the broilers and layers are found.



The above graphic of poultry numbers in Scotland reveals the ‘top-down’ structure of the industry with around 1.37 million birds making up the breeding flock in Scotland, while there are 6.7 million broilers and 6.2 million layers in production farms.

## Infrastructure

The typical poultry shed will have the following common features.

- **Temperature and humidity control,**
- **Ventilation system,**
- **Automatic feeding system,**
- **Drinker system throughout shed,**
- **Perches and other environmental enrichment.**

The specifications of a broiler shed are typically similar to that of a laying shed, although the internals required for egg laying, grading and packing will not be required. Despite the commonalities in design of shed, there are variations in minimum space requirements for poultry depending on what production method you are employing. Specifications on space requirements can be found in the Farm Management Handbook.

## Markets

The majority of eggs produced and sold in Scotland are produced on a contract basis. However, locally sourced eggs from small scale egg producers have become more popular in recent years. Larger scale independent egg producers can sell their eggs via the large egg producers/packers, or through local businesses (e.g. hotels, farmer’s markets). Market trends have also shifted towards free range egg production and anyone considering investing in an egg production business should ensure that there will be a market for their egg.

The table below shows egg production by system as a % of total egg production by year.

	1965	1980	2010	2019
Cage*	53%	95%	50%	42.3%
Barn	37%	4%	5%	1%
Free range	10%	1%	42%	52.6%
Organic			3%	3.1%

Adapted from the Farm Management Handbook 2020/2021

*\*Since 2012, as a legal requirement all cage systems must be enriched for laying hens.*

The move to enriched cages increased production costs by around 12%, however it is widely acknowledged by the industry as a positive move, with the majority of new poultry sites being free range.

Most broiler chickens are reared conventionally, with free range and organic production accounting for about 5% of the market. Conventional rearing typically means in light-controlled houses but providing natural daylight through windows (along with other types of environmental enrichment, such as perches and bales of wood shavings/straw) is becoming increasingly popular.

## Costings

Costings and physical performance data for various poultry enterprises are available in the Farm Management Handbook.

### Physical data

A typical broiler is finished/ready for slaughter between 37 to 42 days old, when they are around 2.2 to 3kg's live weight, killing out at around 74%. They require around 3.6kgs of feed to reach this weight. However, market specifications do vary dependant on the contract or buyer specifications. System turn around is typically around 50 to 55 days. This means that up to 7 crops a year are achievable with good management.

Point of lay pullets will typically be reared and ready to lay by 16 to 24 weeks old depending on the breed. Pullets will then typically lay commercially up until 72 weeks old, typically laying between 319 and 330 eggs during this period.

### Financial data

Chicks cost 36p/bird. The typical gross margin per broiler is £0.2774. Therefore, 36,000hd broiler unit with a 4% chick mortality. This could achieve an annual gross margin of £67,108.61.

A point of lay pullet costs around £4.17 per bird. A free-range laying enterprise can expect a gross margin per 1,000 birds of £3,916 per annum or a gross margin of £0.17 per dozen eggs sold. Feed costs make up 92.8% of the variable costs, therefore when considering a laying enterprise conducting a sensitivity analysis to test the enterprises profitability if feed costs were to increase, is very important. For example a £10 per tonne increase in feed cost would lower the gross margin per 1,000 birds to £377 per annum.

## Breeding

Breeding within the poultry industry is largely controlled by large companies who produce chicks & pullets for sale to independent farms as well as utilising contract farmers to rear/produce eggs and meat.

The breeding of rare breeds of poultry is an exception, with the breeding being in the hands of small-scale poultry breeders, for whom poultry may not be their main enterprise but more of a passion project/hobby. Adult birds should be fed a breeder ration for 4-6 weeks before the eggs are to be set (incubated) to increase both fertility and hatchability.

## Hatching

Once the breeding stock has produced a fertilised egg, the egg must be incubated and then hatched. Larger scale egg producers will buy in pullets who are ready to lay after being raised to maturity on specialist rearing units, whereas broiler producers will buy in chicks.

### Incubation

For poultry keepers there is a choice of two methods of hatching chicks – natural or artificial. Hen eggs take 21 days to hatch. Only good sized, normal shaped eggs should be set, eggs which are small or deformed are less viable.

### Natural hatching & fostering

Natural hatching under a broody hen is the ideal way to raise chicks in a small-scale enterprise. It is, however, essentially dependent on having a broody or broodies at the same time as the eggs needing to be set.



When day old chicks are bought to be fostered onto a broody, the chicks should be concealed in the palm of a hand and placed gently under the broody, removing the eggs at the same time. This is best done in the dark, but it depends on what time of day the chicks are obtained. More chicks may be added within the next 24 hours only; the bird cannot count but she has colour vision and can tell the difference between chicks and may attack new ones after the 24-hour window of integration.

### Artificial hatching

Artificial hatching is the most common method used in the poultry sector. This involves the use of an incubator to hatch eggs. Small incubators are in regular use with many poultry keepers, the advantage being that incubation conditions are instantly available at the flick of a switch. It saves the extra space of pens for broodies and takes very little electricity to run. Technical improvements have greatly increased efficiency, but best results will be obtained with eggs that are between 24 hours and seven days old and which have been stored in a cool (10°C) place and turned daily.

Incubators or hatchers require to be cleaned between hatches. Only recommended disinfectants should be used such as Virkon, F10 or egg sanitisers. If eggs are to be set on a weekly basis, then a separate hatcher is the only sensible solution as the huge number of bacteria and dust released on hatching is likely to infect the other eggs still incubating.

## Rearing

Chicks that arrive at rearing units from the hatchery enter a strictly bio secure environment, with the temperature typically being controlled at around 32°C, which is gradually decreased to a more ambient temperature. Initially chicks are fed on the floor, until after 4 days when they are big enough to eat from the feed trays.

Some units will periodically grade their chickens, sorting them into management groups dependant on size and adjusting their ration accordingly, this is done to ensure that the chickens grow at a uniform rate.

## Egg Grading

The financial value of a chicken egg depends on the grade of the egg. The grade of an egg can be influenced by many factors such as lighting programmes and nutrition.

Under UK and European law there are two classes of egg quality: A & B. Grade A is the highest grade, with the eggs being sold as shell eggs. Grade B eggs are broken out and pasteurised, these are typically used in processing. Industrial eggs are for non-food use only and are used in products such as shampoo and soap.

The grade and size of an egg, greatly effects the value of the egg with values varying from £0.70 to £3.20 for six eggs, depending on the production method. As a result the financial viability of the business is highly dependent on achieving Grade A eggs.

Therefore, optimising the environment and the nutrition is crucial to the viability of an egg production enterprise.

## Feeding

Poultry are typically fed a specialist feed designed to provide the correct nutrition for their role, as such there are feeds specially designed for breeding, rearing, laying and broilers. These feeds are available from agricultural feed merchants as well as internally from large poultry companies. Feed costs are the single largest variable cost in poultry enterprises, feed prices have been increasing across the agriculture industry in recent years.

## Quality assurance

Over 90% of eggs in the UK are produced using the British Lion Quality Code of Practice. This ensures that the eggs sold are indeed British and adhere to various pieces of UK legislation governing the food safety of eggs, in particular that laying hen flocks are vaccinated against Salmonella and that all eggs are traceable.

Broiler producers are also committed to high production standards and are typically quality assured through Assured Chicken Production. Therefore, housing standards are often greater than the minimum standard required by law due to the specifications of the buyers.

## Health

Poultry alike all animals can be affected by a variety of diseases and pests. Strict biosecurity protocols are crucial for protecting poultry, particularly in larger scale production systems.

Common poultry diseases include;

- **Avian influenza – APHA must be notified of any outbreak of this.**
- **Mycoplasma**
- **Coccidiosis**

## Biosecurity

High levels of biosecurity are crucial to disease prevention and control in the poultry sector. Good Biosecurity practises include, but is not limited to the following;

- **All oncoming staff and vehicles should clean and disinfect on and off site – some sites require staff to shower on and off site.**
- **Disinfecting when moving between flocks.**
- **Full cleanout of all buildings and internals which the chickens are in contact with in between flocks.**
- **When selecting a potential site for a poultry shed it is important to consider the location of other poultry farms and wild bird populations, to reduce the risk of infection with diseases such as avian influenza.**
- **Ensure feed and water is free from contamination.**

A list of approved disinfectants and how to use them is available at

<https://www.gov.uk/guidance/defra-approved-disinfectant-when-and-how-to-use-it>

## Further Information

The Farm Management Handbook available at [www.fas.scot](http://www.fas.scot)

<https://www.nadis.org.uk/disease-a-z/poultry/>

<https://www.thepoultrysite.com/>

[www.britisheggindustryCouncil.com](http://www.britisheggindustryCouncil.com)

[www.freedomfood.co.uk/industry/rspca-welfare-standards](http://www.freedomfood.co.uk/industry/rspca-welfare-standards)

[www.soilassociation.org/farmersgrowers/technicalinformation/poultrylaying](http://www.soilassociation.org/farmersgrowers/technicalinformation/poultrylaying)

<https://www.ruralpayments.org/publicsite/futures/topics/inspections/all-inspections/egg-and-poultry-inspections/>

<http://www.hy-line.co.uk/services/management-guides/>