

Cost of Pig Production estimation model

AHDB's estimates of the cost of pig production are based on a methodology agreed by InterPIG, a group of economists from major pig producing countries across the world. The calculations provide an estimate of the cost of producing a kilogramme of pig meat. This means that as well as being influenced by the price of inputs, they are also affected by how efficiently the inputs are used and how productive the industry is.

There are a wide range of systems and individual physical and financial performance within the industry. The estimates are designed to provide an indicative average cost of pig production reflecting the ratio of indoor sow and outdoor sow commercial breeding systems (60% indoor, 40% outdoor) and, since 2018, finishing on slats for indoor-bred piglets and finishing on straw for outdoor-bred piglets.

Background to calculations – Production

A wide range of physical performance data are used within the cost of production calculation. The data are provided to AHDB by Agrosoft and include records from indoor breeding, outdoor breeding, rearing and finishing systems. Due to the sample size, the performance is indicative of systems found in the industry rather than providing a precise industry average. From January 2014, the data are weighted to reflect herd size and, for breeding, a balance of 60% indoor and 40% outdoor production.

There are two key factors which influence the overall cost of production – the amount of pig meat produced per sow per year and the efficiency with which feed is used.

Producing more pig meat per sow means that fixed costs are divided by a larger quantity, thereby reducing the average cost of production. Key factors influencing the amount of pig meat produced per sow per year include:

- The number of litters produced in the year
- The number of piglets born alive in each litter
- The mortality rate, both before and after weaning
- The weight of the pigs when they are sent to slaughter

Feed efficiency is also influenced by a number of factors including the quantity of feed consumed by each sow, how well feed is converted by pigs between weaning and finishing (Feed Conversion Ratio) and how quickly these pigs put on weight (Daily Liveweight Gain). Since January 2014, the sow feed calculation has been updated to include the amount fed to maiden gilts, in line with the InterPIG methodology.

Other performance data used includes sow mortality, replacement rate, piglet weaning age, weight at weaning and transfer weight from rearing to finishing stage.

Cost of Production data

The performance data are published on the AHDB Pork website each quarter, using physical performance data for the 12 month period ending in that quarter. Since January 2014 the data are weighted to reflect herd size.

The cost of production estimations are calculated using the spot compound feed prices for each month during the quarter. Cull sow prices, energy costs and interest rates are also updated each month.

Carcase weight and liveweight at slaughter

Until the end of 2013, live weights at slaughter were taken from the physical performance dataset. However, since this used rolling 12 month data, it failed to reflect any seasonal variation in carcass weights. Therefore, since January 2014 the larger data set of nationally gathered carcass weights from pig price reporting has been used to calculate the equivalent liveweight at slaughter, using a standard 76.3 killing out percentage. .

Lean meat percentage is calculated and published on an annual basis from national annual slaughter data.

Allowing for the production cost of mortality

The Cost of Production model takes account of the cost of rearing pigs which are lost during the pre-weaning, rearing and finishing production system. The model assumes that mortality occurs half-way through each production stage but, as lighter pigs have better Feed Conversion Ratio, the model assumes one third of the feed cost has been incurred by the pig at the half-way stage in each cycle.

Background to calculations - Inputs

Whilst feed, cull sow, energy and interest costs are reviewed monthly, other input costs are reviewed annually when data is available. Input costs used in the calculation are:

- Feed prices – updated monthly using spot purchased compound feed prices. Feed prices will reflect Indoor and Outdoor sow feeds for dry and lactating periods; indoor-bred and outdoor-bred rearer feeds; finisher feeds for grower and finishing periods.
- Breeding – including commercial artificial insemination costs and gilt prices updated annually and cull sow weights and prices updated monthly
- Veterinary and medicine costs updated annually
- Straw usage is based on 650kg per indoor sow; 1.4te per outdoor sow (for outdoor sows and outdoor-bred piglets rearing period in straw barns); 50kg per outdoor-bred pig for finishing stage; and no straw for indoor-bred piglets during rearing and finishing stages (assumed on slats). Wheat straw costs based on autumn straw prices.
- Water costs based on 7 m³ per sow, 0.53 m³ per slaughter pig and East Anglian water prices
- Fallen stock disposal costs updated annually
- Manure disposal based on AHDB Pork NVZ calculator and calculated separately for indoor and outdoor systems

- Energy costs based on estimated average kwh usage (currently 300 kwh per indoor sow, 10 kwh per outdoor sows, 10 kwh per slaughter pig), reviewed annually and price updated monthly
- Labour - hours from the AHDB Pork labour survey and costs updated annually based on National Statistics and including Employers National Insurance and Employer Liability Insurance
- Depreciation of fixed assets – calculated on new building and equipment costs depreciated over 20 and 10 years respectively, reviewed and updated annually
- Maintenance costs reviewed annually based on new buildings at 1%
- Finance costs – base rate, short and long-term interest rates as published by the Bank of England, updated on a monthly basis.
- Levies, carcass classification and meat hygiene costs reviewed annually
- Other costs including transportation (farm-to-farm movement of weaners, replacement gilts and finished pigs to slaughter), professional and book-keeping fees, farm insurance, slap markers, tags, disinfectant, PPE and land rental and bi-annual ark moving (outdoor systems) - reviewed and updated annually

The physical and financial data are used to calculate the cost of rearing a pig from conception to slaughter.

The net margin is calculated using the EU Specification monthly published price per kg (DAPP to September 2014 and APP from October 2014) and the monthly published average carcass weight.

Key Points to Note

The Cost of Production model is based on a weighted indoor and outdoor sow physical breeding performance.

The buildings and finance costs assume new buildings and equipment fully financed including principal and interest payments as well as depreciation on these buildings.

Interest on working capital employed is included in the finance costs.

The labour cost only includes employee costs; there is no allowance for partners or directors drawings.

There is no allowance for profit or fixed margins within the calculations.