

# Latest Temperton report focuses on duck production challenges

The Temperton Fellowships for Poultry Research are awarded annually and the recipient uses their award to produce a report on a particular facet of modern poultry production. Previous reports have covered subjects as diverse as EC legislation, biotechnology, welfare, consumer perceptions, feedingstuffs, the learning revolution, carcase utilisation, genetics and avian influenza.

Report No. 18 entitled 'The World of Waterfowl' was completed by Richard Bird, managing director of Cherry Valley Farms Ltd, and he recently presented it in London. In this article we will highlight his key observations.

Currently, FAO statistics put the world's annual total duck meat production at 3.78 million tonnes and goose meat at 2.37 million tonnes. Some 82.5% of global duck meat production is in Asia, with China producing two thirds of the world's production (see Table 1).

Prior to the fall of communism the former Soviet Union was reported to be producing 500,000 tonnes of duck meat a year but no accurate figures are available for current production. The UK only produces 0.63% of the world's duck meat but it supplies breeding stock for two thirds of the world's production.

When it comes to goose production, Asia

Region	2000	2008
Africa	56.5	57.1
North and Central America	80.0	112.0
South America	16.3	17.6
Asia	2316.5	3121.9
inc. China	1866.7	2518.2
Thailand	102.5	84.9
Vietnam	69.6	84.0
Europe	404.2	459.0
inc. France	233.3	248.6
Germany	40.0	60.8
Hungary	43.4	51.4
Australasia and Oceania	8.0	11.4
<b>Total</b>	<b>2882</b>	<b>3780</b>

**Table 1. A summary of world duck meat production ('000 tonnes).**

again dominates with 94% of production; Europe and Africa produce 2.0 and 2.4% respectively. The engine for growth in duck and goose meat production has been Asia, especially China. The average Chinese consumer eats 2.0kg of duck meat a year, while the figure for the UK is 0.6kg.

Today, the most economically important duck breed is the Pekin although in China a number of native breeds such as the Shao, GaoYou and Jianchang are still used.

In addition to producing meat, ducks are also used for egg production.

The performance of the modern Pekin duck has improved markedly over the last 40 years. This has mainly been brought about by genetics but improvements in management, husbandry and nutrition have played their part.

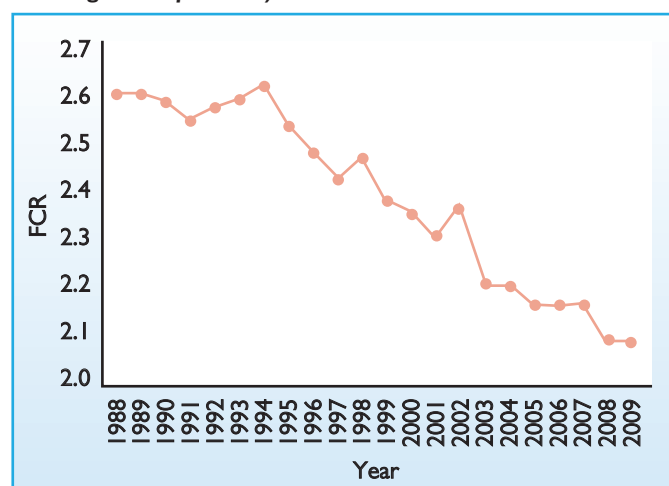
Selection has focused on growth rate, FCR, carcase quality in male lines and on egg production and hatchability in female lines. Over the past decade or so egg production per female has risen from 260 to 295 eggs for a 50 week lay.

If we compare the modern Pekin breeder to a modern broiler breeder (Cobb 500) the broiler breeder female produces 175 eggs in a 45 week layer, whereas the Pekin produces close to 250. Comparable figures for day olds are 148 and 200 respectively.

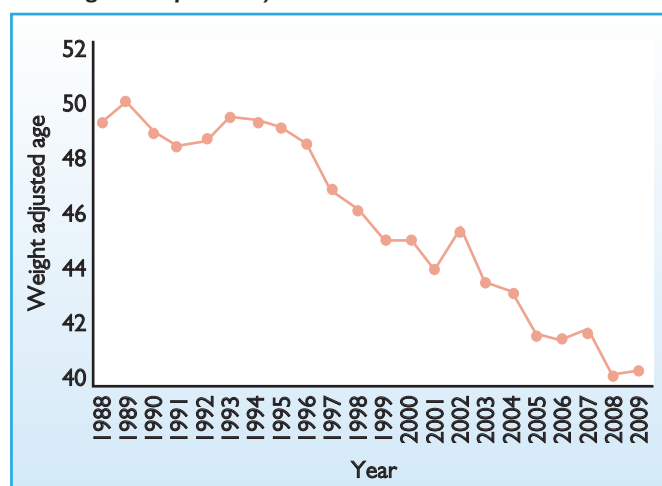
Day old ducklings weigh 55g and grow quickly and will normally reach 3.5kg by 44 days at an FCR of 2.05. Over the last 20 years FCR has improved significantly from 2.60 to 2.05 (see Fig. 1). This has been reflected in real improvements on age of kill at 3.25kg figures (see Fig. 2).

*Continued on page 14*

**Fig. 1. FCR improvement over time adjusted to a live weight of 3.25kg (UK figures based on nine million ducks a year through an integrated operation).**



**Fig. 2. Improvement in age of kill when weight adjusted to 3.25kg (UK figures based on nine million ducks a year through an integrated operation).**



*Continued from page 13*

Duck meat is differentiated from other poultry meats by its distinct and unique flavour and succulence, which is related to the skin and fat.

Selection aimed at increasing breast yield has to take this into account as, generally speaking, when skin and fat levels fall below 28% flavour is lost and meat becomes tougher. Typically a duck slaughtered at 44 days would yield 526g of breast, 400g of leg meat and 631g of skin and fat. A broiler processed at the same age would yield approximately the same amount of meat from a 500g lighter carcass.

## End to outdoor methods?

The advent of SARS in the mid 1990s followed by highly pathogenic H5N1 avian influenza has hastened changes in duck production in Asia. This is also coupled to a need to reduce environmental pollution and conserve precious water resources.

In fact, the Chinese government is seeking to bring an end to extensive (outdoor) methods for duck farming and the traditional wet markets in which ducks are sold live.

It has also in the last two years enforced a policy of vaccinating all ducks against avian influenza and this has been accompanied by a real reduction in the reported cases of that disease in China. Similar changes have occurred in Thailand.

In south and east Asia as a whole, large numbers of egg laying and some meat ducks are still reared extensively. In this system the ducks are in the paddy fields during the day and are penned up at night.

It is ironic that while Asian countries are hastening the move to intensification the welfare lobby and major retailers are persuading production in Britain and Europe to move in the opposite direction!

In modern intensive farms in Asia the use of cooling pads and tunnel ventilation to alleviate the effects of high temperature and humidity on bird performance are the norm on most new farms. Ducks are very adaptable and perform well in many different types of housing.

### Housed duck production in Asia.



**Traditional outdoor production in China.**

However, it is worth noting that increasing legislation and customer requirements are expensive and often such costs can not be passed on to the consumer even though their initiation may well have been consumer inspired!

An early issue in duck nutrition was that of aflatoxins as ducks are very sensitive to them. Aflatoxin levels as low as 18ppb, which have no noticeable effects on chickens or turkeys, can kill ducks because of the consequences of the liver damage caused by them. Generally speaking, ducks can perform better than other types of poultry on diets of lower energy and protein levels and, in Asia, this allows the effective utilisation of a variety of locally grown ingredients.

It is important that ducks have access to drinking water when they are feeding and this means that water in the drinker can become easily contaminated with feed and become an ideal medium for bacterial growth. Thus, an important aspect of modern duck husbandry has to be good drinker management.

On the management front the Report highlighted that commercial ducks should receive 23 hours of light a day as they eat little and often.

The duck maintains its condition by

immersing its head and throwing water over its back to aid feather preening and Mallards show no or minimal clinical symptoms of avian influenza.

The return to extensive management systems will present challenges as ducks outside will come under greater threat from disease and predation thereby causing welfare issues even though consumers champion this approach. Currently, not much antibiotic is used in intensively reared ducks but this could change with a move to extensive production.

The Report concluded by looking at the costs of duck production and comparing production in the EU to that in China. Overall, a Chinese day old duckling costs 40% of its EU counterpart and the Chinese are able to produce their processed duck at just 53% of the EU cost.

In addition, the Chinese can sell all the parts of the ducks they process which, because of legislation, is not the case in the EU and gives the Chinese a great commercial advantage. This has already been capitalised on by the Chinese who have taken much of the Japanese trade from the Thais. In 2009 China sold 4,000 tonnes of cooked product to the EU and by 2011 this is targeted to reach 30,000 tonnes!

In conclusion, the report highlights the following challenges:

- A shortage in the UK, USA and Europe of human resource.
- Higher grain prices and grain shortages.
- The position of environmental and pollution issues on the west's agenda.
- Competition for resources such as water and bedding.
- The Europeans will have the challenge of cheap cooked Chinese imports.
- Slow growth in duck consumption outside China and the Asian countries could increase European consumption but at the expense of the local industry.
- Increase in intensive production.
- Duck breeders will have to narrow the gap between ducks and chickens if duck is to compete for cereals. ■