

# 19th Temperton Fellowship focuses on the global market for turkey meat

The presentation of the 19th Temperton Research Fellowship recently took place in London and International Meat Topics attended.

The presentation was a summary of the Report presented by Richard Hutchinson of Aviagen Turkeys Ltd and was entitled 'The Challenge of Supplying High Protein Turkey Meat as Part of the Global Demand for Food'.

In this article we will review the main issues that Richard addressed. His objective was to analyse the global market for turkey meat and identify some of the growth opportunities.

Globally per capita consumption ranges

	2004	2009
France	624	433
Germany	358	376
Italy	298	290
United Kingdom	228	157
Hungary	143	110
Poland	236	285
EU-25/EU-27 <sup>1</sup>	2,101	1,818
Brazil	315	437
USA	2,474	2,569
Canada	145	170

<sup>1</sup>from 2007 EU-27

**Table 1. Production of turkey meat ('000 tonnes).**

from 13kg down to zero and turkey meat production is currently centred on the Americas and Europe. The challenge for any meat producer is to produce products that have taste, quality, value for money, innovation and meet defined criteria in terms of product safety and animal welfare.

### Three driving factors

Globally there are three factors driving organic demand, namely, population growth, improving living standards and bio-fuels. The latter impacts production costs.

In key emerging markets, such as China,

	2004	2009
Austria	6.0	6.4
France	6.0	5.0
Germany	6.5	6.0
Italy	5.3	4.9
The Netherlands	1.9	1.1
United Kingdom	5.0	4.0
EU-27	4.0	3.4
Brazil	1.0	1.4
Canada	4.3	4.6
Mexico	1.5	1.7
Russia	0.8	0.6
USA	7.8	7.7

**Table 2. Per capita consumption of turkey in EU and selected countries (kg).**

India and Brazil, urbanisation and improving affluence is increasing demand for meat and dairy products.

Interestingly, Richard highlighted how it takes 7kg of grain to produce a kilo of beef and just 3kg to produce the same weight of turkey. In addition, arable land per person and water supplies are become scarcer so improved meat production will require better genetics, mechanisation and husbandry.

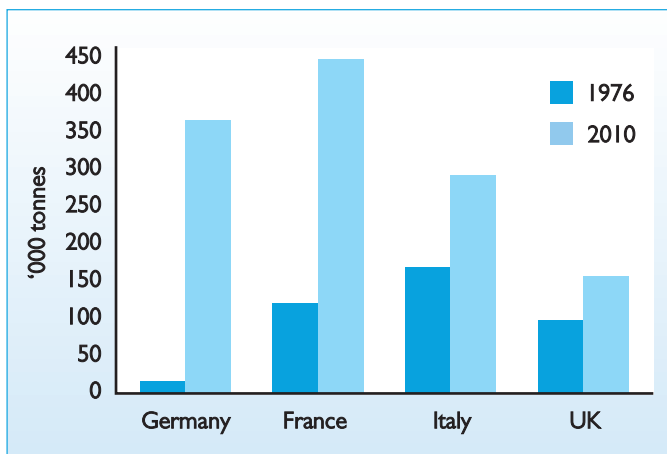
Currently, some 51% of turkey meat is produced by the USA and 34% by the EU with Brazil producing a further 8% (see Table 1). Table 2 shows per capita consumption figures.

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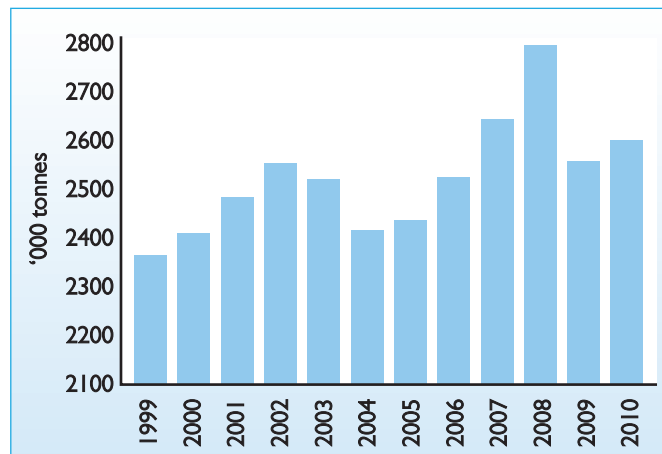


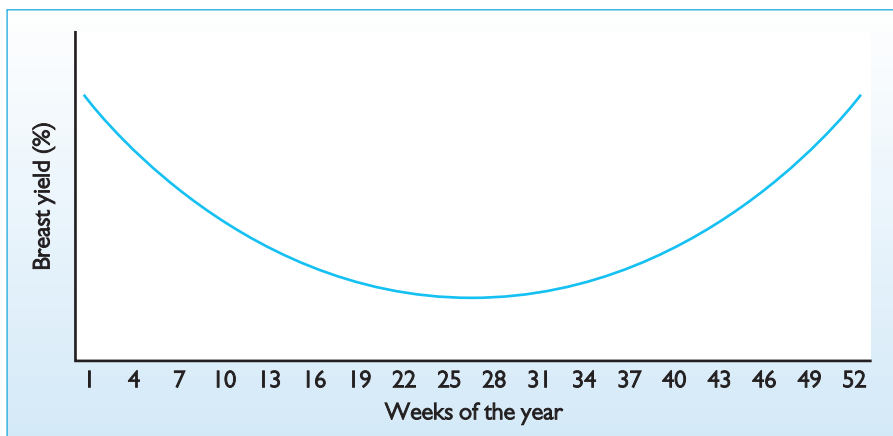
**Richard Hutchinson, the recipient of the 19th Temperton Research Fellowship.**

**Fig. 1. European market 1976 vs 2010.**



**Fig. 2. USA turkey meat production 1999-2010.**





**Fig. 3. How percentage breast yields are affected by season.**

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Turkey meat is a 'healthy meat' that is low in calories (155 calories per 100g grilled breast meat), fat (1.7%) and 22.6g of protein per 100g. Turkey meat has a good balance of amino acids and is relatively rich in vitamins and minerals. As a meat it is a great flavour carrier and is a robust meat which keeps its form in soups and when grilled.

### Dramatic changes

Over the last 35 years the European market has changed dramatically (see Fig. 1). Interestingly, the French market peaked at some 760,000 tonnes in 2000 and the UK peaked just short of 300,000 tonnes in 1997, whereas Italy and Germany are currently at the highest outputs ever.

The USA has had a steady, but cyclical growth (Fig. 2). In many countries breast or white meat is preferred but in some, for example Turkey, leg or dark meat has a strong market. Breast meat equates to 26-28% of bird weight but generates 60-70% of carcass income.

Turkeys can be killed at different ages and this can influence the final composition of the carcass in terms of muscle, fat and bone content. Killing turkeys early reduces the relative amount of muscle, while killing them too old increases the percentage of fat.

In commercial turkey production the deposition of breast muscle is going to occur in the latter half of the growing cycle and this can be influenced by many things, such as incubation, genetic potential, nutrient density, season, house temperature, ventilation, stocking density, feeder and drinker space, ingredient quality, ingredient digestibility, disease, growth promoters, lighting, physical quality of feed, calorie: protein ratio, age, growth pattern and food consumption.

In terms of genetics it is interesting to see how one pure line male can influence almost 100,000 tonnes of meat (see Table 3).

Interestingly, percentage breast yield is affected by season and Fig. 3 shows European data on how summer temperatures impact on breast yield.

The Brazilians have shown steady growth in turkey meat production this century (Fig. 4) and is now the world's second largest producer of turkey meat, the USA being the largest. In the first decade of this century per capita consumption of turkey meat in Brazil almost trebled from 0.5 to 1.4kg.

The German market for turkey meat continues to increase. This is helped by 5D certification which is a system that assures all stages of the production are in Germany (hence the D for Deutschland).

In addition, certain German supermarkets insist all turkey meat is of German origin,

Pureline	1 stag and 10 hens
Great grandparents	100
Grandparents	3,500
Parents	122,000
Commercial birds	8,085,000
Tonnes of meat	94,595

**Table 3. Genetic impact.**

even in its supermarkets in other countries such as France. This is reflected in the production of day old poult figures for Germany (Fig. 5).

Interestingly, in Italy turkey meat production began in the 1960s when turkey breast meat was seen as a cheap substitute for veal.

### Rapid increase in Poland

The Polish market saw a rapid increase in per capita consumption when turkey meat rose dramatically in the 1990s and then plateaued (Fig. 6).

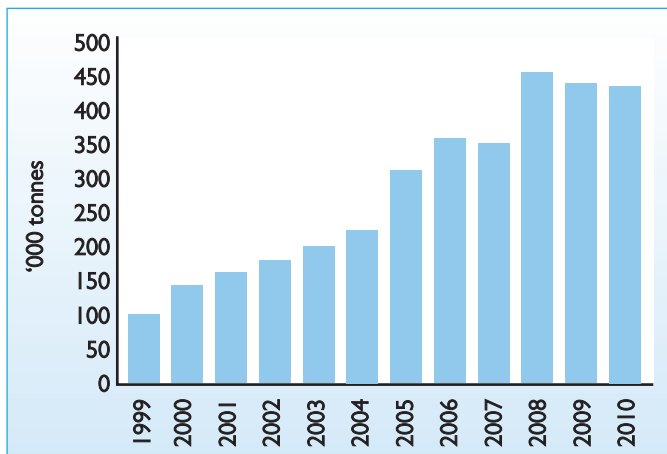
Following entry into the EU in 2004 Poland took advantages of EU funding to reconstruct and upgrade its processing plants with the net result that today there is more production capacity than turkeys – a nice situation for the farmers but one that is unlikely to last!

Russian demand for turkey meat is increasing and local production is taking over from imports!

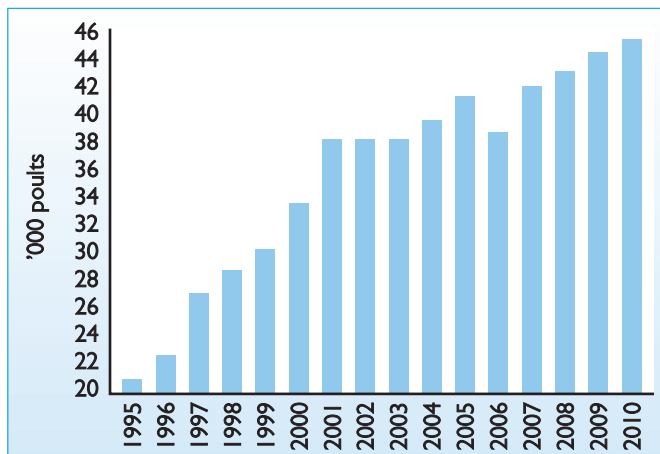
In Turkey, when lamb and beef prices are high, turkey becomes a very attractive alternative and, as was mentioned earlier, dark meat is popular. Consumption of all poultry meat was badly hit by the occurrence of highly pathogenic avian influenza in the country a few years ago. However, young Turks like turkey meat which bodes well for the future

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**Fig. 4. Turkey meat production in Brazil 1999 to 2010.**



**Fig. 5. Hatch of turkey poults in Germany 1995-2010 (Marktbilanz Eier and Geflügel 2010).**



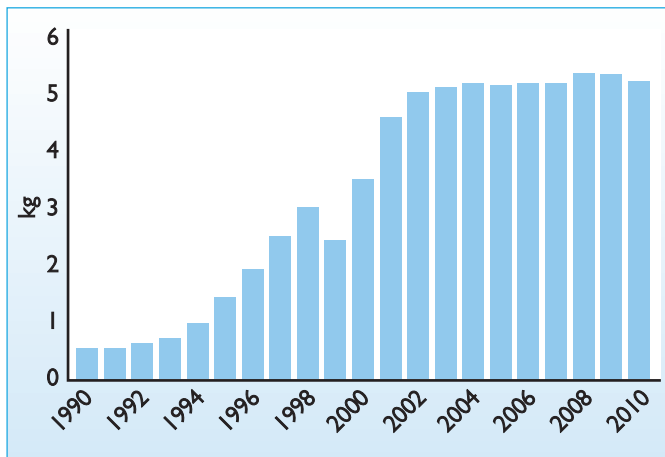


Fig. 6. Polish turkey consumption (kg per capita per year)

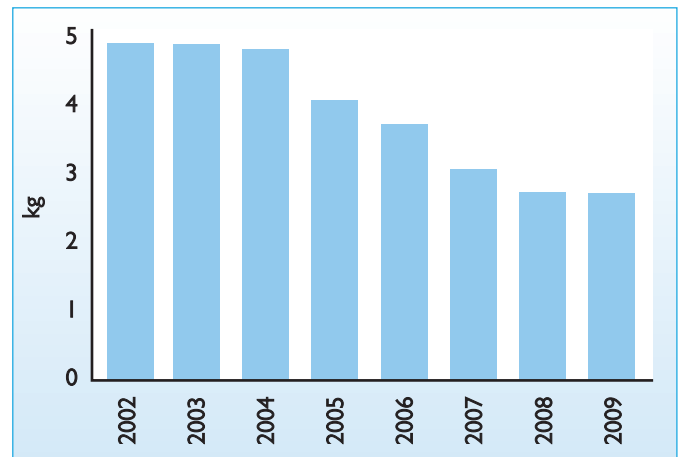


Fig. 7. UK turkey consumption (kg per capita per year).

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An interesting new market for turkey meat is North Africa (although it is too early to ascertain the impact of the recent unrest in the region). In Morocco 52% of all meat consumed is white meat and in Tunisia about 25% of all poultry meat consumed is turkeymeat.

The story in the UK is slightly different. From 90,000 tonnes in 1976, turkey meat production increased to 296,000 tonnes in 1998 and then fell off to 160,000 tonnes today!

Part of this is due to imports but much of

it is due to a drop in per capita consumption (Fig. 7).

In bringing together his presentation Richard concluded with the following points:

- Increased demand for meat will occur because of increased population, urbanisation and increasing affluence.
- Demands on resources such as land, water and grains will increase demand for high density animal protein and a maximisation of production efficiency.
- There will be greater controls on production, welfare, disease, husbandry practices and waste management.

● Turkey meat is high in protein, low in fat and has many of the attributes demanded by modern lifestyles.

● White and dark meat on the same carcass. The former is a substitute for pork and chicken, the latter for beef and lamb,

● Breeding companies can improve productivity and improve the competitive position of turkey meat.

● Opportunities are there for new markets, new products and better performance.

*Copies of this report are available from Harper Adams University College.*