



ASSOCIATE PARLIAMENTARY FOOD & HEALTH FORUM



Novel foods – what will our food look like 20 years from now?

5-6.30pm, Tuesday 20 January 2009

Committee Room 2A, House of Lords

Introduction

Lord Rea welcomed the guest speakers and members to the meeting. He explained that novel foods are defined in an EU regulation (No. 258/97) as a food that does not have a significant history of consumption within the European Union (EU) before 15 May 1997. The same Novel Foods Regulation lays out detailed rules for the authorisation of novel foods, ingredients and processes and states that foods or food ingredients falling within the scope of the regulation must not present a danger for the consumer, mislead the consumer or differ from foods or food ingredients that they are intended to replace to such an extent that their normal consumption would be nutritionally disadvantageous for the consumer. Novel foods are subject to a pre-market safety assessment before a decision is made on EU-wide authorisation.

Lord Rea introduced the first guest speaker, Lindsey Bagley, a Fellow of the Institute of Food Science and Technology Lindsey studied biology and biochemistry at York University. Since then she has had 30 years experience of product development within the food industry firstly with Beecham Products then Tate and Lyle. Since 1989 she has been an independent consultant to the food industry worldwide. She is a Fellow of the Institute of Food Science and Technology and chair of their Public Affairs Committee.

Lindsey Bagley, Fellow of the Institute of Food Science and Technology

Lindsey explained that she had started working in the food industry in the 1970s and, unusually, she had remained in the field of product development throughout her career because this was her main field of interest. Being a consultant to the food industry for the last 20 years had enabled her to remain “hands on” in product development.

In considering what food would look in 20 years time, Lindsey had thought about what food looked like 30 years ago and where we are now. Her personal predictions for the future were based on current trends, consumer expectations and progress in food science. Novel foods of the future will be based on what consumers know they want, but also on what consumers do not yet know they want because they have not experienced them yet. Just as many years ago consumers could not have anticipated “wanting” fridges and microwave ovens. The more ingredients the food industry has in its armoury, the better placed it will be to provide foods that the consumer wants.

Our food now is based on lifestyles and consumer expectations that have changed significantly over the last several years as a result of numerous factors, including: greater affluence, more working women, greater financial commitments, an older population, more single households and a computer based society.

Lindsey used four examples – yoghurt, fruit juice, food bars and water – to illustrate how food had changed and how it may develop further. Originally yoghurt had been a means of using up waste skimmed milk. Over time, the product had been ‘romanticised’ by association with long-living

Chairman: Lord Rea
Vice-Chairmen: Dr Ian Gibson MP
& Baroness Miller of Chilthorne Damer
Secretary: The Earl Baldwin of Bewdley
Treasurer: Baroness Gibson of Market Rasen

Associate Parliamentary Food & Health Forum
Church House, Great Smith Street
London, SW1P 3AZ

Tel: 020 7222 1265 Fax: 020 7222 1250

isolated populations and its consumption had moved from breakfast to any time of the day as 'grazing' has taken over from formal meals in many families. Now yoghurt is heavily promoted as a healthy food, with much focus on its beneficial components, including prebiotics, probiotics, sterols, stanols, omega 3 and healthy proteins. When it was originally sold in the UK, fruit juice was usually long-life orange or grapefruit juice, consumed at the weekend as a treat. Now it is regarded as an "every day" food, and there is a huge choice including exotic fruits such as pomegranate, goji, açai, dragonfruit with vitamins, minerals and other functional ingredients, and it is consumed either as a juice or as a smoothie. Food bars originally consisted of flapjack or crispie cakes; now the choice has expanded to include lunch box bars, fruit bars, breakfast bars, snack bars, slimming bars, satiety bars, high energy or low GI bars. When we thought of water in the past, we thought of tap water. Now we can buy still water, spring water, mountain water, carbonated water, functional water, flavoured water, even "thirst quenching and hydrating" water...

All these products illustrate how complicated food has become because of product development, which results from technical expertise and is related to growing affluence – including the capacity and the willingness of the consumer to pay for sophisticated foods. Looking ahead 20 years at lifestyle trends and consumer expectations, we can expect less affluence, more job sharing, more leisure time, a smaller working population, an ageing population and more single-person households. At the same time, we can expect greater health awareness, especially as the population ages.

In the past food colours were limited to azo dyes. We still have azo dyes, but they are being used less and less because we now also have natural colours and extracts. However, these do not yet have all the properties of the chemical dyes previously used. We cannot go back to using azo dyes alone, but the consumer is likely to want a full range of natural extracts to colour foods regardless of process or shelf life.

We used to rely on saccharin as an alternative sweetener to sugar. We now have an armoury of intense sweeteners, including saccharin, aspartame, acesulfame K, sucralose. Different sweeteners have different limitations, but overall they achieve the results demanded by the food industry. In the future we will also need natural sweeteners from extracts, including stevia, Lo Han and other natural extracts.

We used to use Benzoates, sulphites and sorbates as preservatives. To this range, we have now added nisin and derivatives, as well as emerging natural extracts such as rosemary to deliver the full range of efficacy required by the food industry as an alternative to chemical preservatives. In the future we will need all of these as well as more natural extracts with both anti-oxidant and preservative activities.

In the past we had chemically modified stabilisers, emulsifiers and texturisers. Chemistry will still play a big part in the food industry, but we need to use it to modify natural products, for example, through heat or pressure, to provide different functionality. The key direction of change will be an increasing focus on natural extracts. Consumers know they want their food to be more "natural". For a number of non-scientific reasons they have been turned away from "scientific" ingredients and Lindsey does not expect this to be reversed.

What consumers do not know they want are natural extracts that will address overall health and wellness issues, including physical integrity, mental alertness and lifestyle issues, such as "detox" and stress. These issues are not new, but we will need to find new ways of addressing them.

Where will natural extracts come from? Good sources are likely to include South America, South Africa, Australasia and our lakes, rivers and oceans. We should not underestimate the hurdles. New extracts have to be categorised, pass regulatory standards and be commercially viable. It takes a long time for this to be achieved, as illustrated by the long history of omega-3. Novel natural extracts will have to be safe, efficacious, cost-effective, product and process stable, as well as taste compatible. Lindsey hopes these natural extracts will open up a new world of healthy

taste experiences that are also fun-filled, because in focusing on food and health issues, we should not lose sight of the social importance of food.

Lord Rea thanked Lindsey for her presentation and introduced Bob Marsh, the Managing Director of the Food Processing Knowledge Transfer Network. Bob graduated as a chemist from Bristol University, and worked initially for Procter & Gamble. He then worked for Ranks Hovis MacDougall (RHM) for 27 years and was part of the original team developing “Quorn”. He was Managing Director of RHM Technology (1996-2002), a member of the RHM Board, and among many public positions became Chairman of Campden & Chorleywood Food Research Association, a Governor of the British Nutrition Foundation, and Chairman of Food & Drink Foresight for the Office of Science and Technology. Bob is now Managing Director of the Food Processing Knowledge Transfer Network and chairs the Scientific Advisory Committee of Flanders’ Food.

Bob Marsh, Managing Director of the Food Processing Knowledge Transfer Network

Bob said he would like to paint a picture of what food would look like 20 years from now, the drivers and motivators of what we choose to eat and what food manufacturers choose to offer for purchase. Bob gave this sort of talk ten years ago, on a platform with the DTI Minister, John Battle, and Lord Sainsbury, and his ideas now are based on his views then, modified by experience over the last decade.

The Food Processing Knowledge Transfer Network is a small DIUS and Defra funded agency, one of the 25 Knowledge Transfer Networks, but the only one in the food industry translating knowledge from academia into industry to improve profitability.

It is helpful to look back over the last 20 years when considering how things will change in the next 20 years. In 1989 the UK had been through a period of unparalleled growth and we were about to enter a recession, with high unemployment, sterling falling and greater international trade – not so very different to today.

The fats issue has become more complex. Then yellow fats were in decline; fats were bad, saturated fats were worse and trans fats were even worse. There has been some resurgence since, not least with the development of spreadable fats.

Fruit and vegetables have been much promoted over the last 20 years. Last week a new BNF report told us that average fruit consumption is now 2.5 pieces a day, with men eating less than women and children eating more than adults.

GM foods came and went. Two types of GM tomatoes were developed, sold in supermarkets and were gradually being accepted until pressure groups and the media combined to vilify them. Now GM foods have been rejected by the EU and they are a non-runner in the UK, unless only they can deliver what society needs. This is not likely to change in the next 20 years.

20 years ago sugar was regarded as bad and several alternative sweeteners were developed. Now salt is the “enemy” in the larder because of its association with high blood pressure and hypertension and the FSA has launched a major campaign seeking to persuade people in the UK to reduce their salt consumption.

Food consumed out of the home has risen from 30% to 50% over the past 20 years and we are now eating a much wider range of ethnic foods. This trend is likely to continue – in the US eating out has risen to 70% - although we know less and less about the food we eat out in comparison with the food we buy to eat at home.

Cookery and domestic science disappeared from the school curriculum 20 years ago, producing a generation with relatively low cooking skills and food knowledge. This has implications for the present generation of children as young mothers do not know how to provide a healthy diet for their

families. Children are given processed foods that they like eating, producing a generation of fussy eaters who will become fussy parents.

Quorn is the only really novel food developed in the last 20 years. It is a microfilamentous fungus that was developed to have the same texture and strength as chicken breast. It cost some £200m to bring Quorn to the market and the patents have now expired. This lengthy development time is typical: it took 25 years to bring Kellogg's cornflakes and margarine to the market.

Where are we now? Our aspirations now are at odds with reality. The most popular food for children and young adults is currently pizza and yet we hope children will advise their parents on healthy diets.

The proportion of over 60 year olds in the population has doubled in the last 20 years and it will double again in the next 20 years. An ageing population will require food to compliment pharmaceuticals in the alleviation of medical conditions. The proportion of under-14s has remained stable and is likely to remain stable.

We are increasingly exposed to foreign foods through travel.

The obesity epidemic is leading to the development of new foods, including diet foods, and the demand for these is likely to rise.

The European legislative system was described briefly by Lord Rea. New foods from abroad require safety testing on Caucasian populations before they can be introduced in Europe and this restricts the number and variety of new ingredients for use in our food.

In reality in 20 years time 90% of the food we eat is likely to be the same, although it is likely to be in modified packaging and available through a modified distribution system. There will be greater diversity of products in the marketplace with growth in the number of 'specialist' outlets. Some products will increasingly be marketed to particular groups, for example, diabetics. Other things will be quite different.

In 20 years time, we may have non - invasive health monitoring sensors in home, such as retinal detectors within mirrors. There will be a revolution in food storage in the home with automatic internet food ordering will be based on usage expert systems – similar to those being developed and used in Japan now. Diets will become more personalised to maintain optimum health. Already in New Zealand diets are being developed to accommodate the needs of people with some gene-related diseases, such as Crohn's Disease.

What will food look like in 20 years time? It will be visually appealing, in transparent, atmosphere controlled, microbiologically sealed, easy open, nutritionally balanced portion sizes. The packaging will be developed to deliver flavour/aroma on opening, at preparation and cooking and while eating. The texture and freshness will be monitored and controlled by the packaging to deliver perfectly "ready to eat" food. It will be served with prescribed accompaniments, such as sources, so that the 'restaurant' experience can be delivered at home by an unskilled cook.

All this will happen because there will be increased splintering of the food industry. We already have basic and premium ranges. We will not eat more calories per day than we do today, but the food industry will want to extract more value from our food by developing and promoting an increasing proportion of premium brands. New products will principally result from manipulating the packaging.

Questions

Gaynor Bussell of the FDF disagreed with Bob's predictions and said she expected the credit crunch to encourage more consumers to eat at home and to take more interest in the food they prepare and eat at home. **Lindsey Bagley** said there had been an enormous growth of

convenience foods in the last 20 years, but since last summer demand had declined and she knew of two factories making convenience food that had been closed as a result. She thought it would be good for the health of the nation as more people develop cooking skills. **Bob Marsh** said he would agree if we were only looking 5 years ahead, but there had been recessions in the past and this had not stopped consumers resorting to convenience foods. **Gaynor** and **Lindsey** maintained that attitudes were changing because of increasing awareness of the importance of diet for health.

Alan Long of Vega Research referred to experience since World War II, which had been typified by the richer, western world eating diets rich in meat and dairy products, while the poorer, developing world typically ate a vegetarian diet. He said that some food research had taken place in an attempt to develop new vegetarian foods in the west, such as soya-based foods, but not enough money is spent on research. We need more research and it needs to take into account international experience and be wide-ranging.

Richard Marshall of London Metropolitan University agreed that more research is needed. He asked the speakers whether they thought people would simplify their diets, perhaps because they had less time as a result of economic pressures to prepare and eat food. **Lindsey** said the food we eat every day is better for us than many people appreciate so we do not need to make radical changes. Raspberries and peanut butter, for example, are nutritious, convenient foods. **Bob** said that food expenditure only represents 15% of the average household's budget, so the response to difficult economic circumstances is likely to be reduced expenditure on luxuries, such as DVDs and newspapers, and people will drink alcohol at home rather than in pubs.. We may eat out less and people on lower incomes tend to eat carbohydrate rich staples.

Professor Jack Winkler of London Metropolitan University referred to the global rise in food prices in 2008 which had led to food riots in some countries. He suggested it was plausible that long term increases in food prices, combined with falling incomes, would lead to demand for less sophisticated and less processed foods. **Lindsey** said that financial factors were always important to the food industry, but over a long period and through various recessions, the long term trend was for the food industry to increase the profitability of food, for example, by extending its shelf life. She agreed that other factors, including global warming, will be significant for food production and supply and we should not underestimate the contribution of GM foods, which had enabled some parts of the world that had been starving to be able to feed themselves. **Bob** said the UK is in a privileged position as a relatively wealthy country. He expected the UK to continue to be able to accommodate increases in prices in raw materials, which are less than a third of the selling price of food. He also supported Lindsey's point about GM foods. If we had to choose between GM foods and starvation, we would choose GM foods.

Lord Rea asked whether the demand for novel foods really comes from the consumer or is driven by the food industry. **Bob** said some of the demand was inspired by consumer experience, for example, as a result of travel. No producer will produce a food for which there is no demand, but the issue is how that demand is manipulated. **Lindsey** agreed. She said the reaction against chemical food colours based on increasing awareness of the links between tartrazine and hyperactive behaviour had led parents to look at other food colours and to demand natural alternatives.

Conclusion

Lord Rea thanked both speakers for their presentations and brought the meeting to a close with the announcement of the next meeting, which will take place on 24 February 2009. Our subject will be the reviews of the FSA nutrient profiling model and the Ofcom limits on food promotion to children on television. Our speakers will be Claire Boville of the FSA and Peter Bourton of Ofcom.

CLC, January 2009