

# Food, Health and the Consumer

T.R.GORMLEY, G. DOWNEY, and D. O'BEIRNE

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A report from the FAST Programme of the  
Commission of the European Communities

# FOOD, HEALTH AND THE CONSUMER

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# FOOD, HEALTH AND THE CONSUMER

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*A report on Technological Change in Agriculture and the Food Industry, and Public Policy in Relation to Food Production, Nutrition and Consumer Safety, prepared for the Commission of the European Communities, Directorate-General for Science, Research and Development, as part of the FAST Programme (Forecasting and Assessment in the Field of Science and Technology).*

## FOREWORD

The FAST Programme's (Forecasting and Assessment in Science and Technology) mandate, as defined by the Council of Ministers, involves the analysis of scientific and technological changes in order to highlight their long-term implications and to propose timely policy options and new long term orientations for Community action, particularly in the field of science and technology.

This report is one of three cooperative studies undertaken for FAST's food subprogramme on the theme of Food and Health\*. It was financed 50% by European Community funds and 50% by An Foras Talúntais.

The relationship between food consumption and health has of course always been important, but in recent years in the developed world attention has turned from the traditional concern regarding undernourishment to worries about the diseases of affluence, related to over and/or unbalanced food consumption patterns. Consumers have also become concerned that as food technology becomes more complex through the introduction of new production techniques (extrusion, irradiation, controlled and modified atmosphere packing, fractionation and recombination of food constituents etc) it likewise becomes more difficult to control the quality and safety of food products. Similar concern is expressed over

\* The other two are: H. Grimme, R. Altenburger, M. Faust, K. Prietzel "Towards an Ecotrophobiosis - developing a strategy in relation to food and health from a life science point of view" FOP 106, August 1986 and J.V. Wheelock, J.D. Frank, A. Freckleton, L. Hansen "Food consumption patterns and nutritional labelling in selected developed countries". FOP Jan 1987 (forthcoming).

intensive agricultural production methods (growth hormones, antibiotics, high fertiliser applications, pesticide residues etc). Such developments raise important long-term issues for European consumers, farmers and food processors and bring into question whether we should be thinking of a reorientation of research priorities to give greater weight to these new concerns. Similarly, the question arises of whether existing policies which impinge upon the food system, of which the Common Agricultural Policy is of course the most important, can adapt to the new health concerns or whether Europe should be moving towards a common food and/or nutrition policy.

Before suggesting major reorientations in existing policies it is important to have a very clear view of the current state of knowledge, what new developments show most promise and what alternative actions for Europe really exist. Shedding light on these issues is the ambitious objective of this report, which is the end result of an extensive literature review (over 600 articles), a series of interviews and a Workshop held in Dublin in March 1986 involving leading scientists, consumer, agricultural and food industry interests.

Different Chapters of the report assess relationships between nutrition and disease; agricultural and food processing practices and food quality and safety; and food and nutritional policies in a large number of developed countries.

The report concludes with a number of recommendations for action by the European Commission. In this context, it must of course be recognised

that these recommendations reflect the views of the authors and must in no way be interpreted as an authoritative statement of the views of the Commission.

Bruce Traill  
Coordinator Food Subprogramme



SUMMARY

The purpose of this project was to study technological change in agriculture and the food industry, and also public policy in relation to food production, nutrition and consumer safety. In real terms this means a study of food, health and consumer issues and how these integrate into, and in some cases interact with, the food system. The study was carried out as part of the FAST (Forecasting and Assessment in Science and Technology) programme of the Commission of the European Communities. The data in this report are in effect a series of critical reviews based on the scientific, trade and popular literature together with the distilled views of many experts in a number of countries who were contacted during the study or who took part in an EEC FAST workshop in Dublin to review the draft findings.

CHAPTER 1 is a critical review and assessment of key nutritional issues and of the criteria currently applied for determining the effects of food of plant, animal and marine origin on human health. Food and nutrition policies are reviewed and assessed in CHAPTER 2 while agricultural production and food processing technologies are examined with respect to their possible impact on human health and in relation to consumer attitudes in CHAPTER 3. A list of 45 conclusions and recommendations is given in CHAPTER 4. It should be noted that the authors recognise microbiological food poisoning to be a major public health problem in most developed countries; however, it is outside the ambit of this report and should be the subject of a separate study.

Food, health and consumer issues will continue to be a major challenge to all involved in European food production, processing and policy-making into the next century. The consumer lobby in relation to food and health

will continue to grow and an integrated European policy concerned with the quality and safety of the food supply in human nutrition terms is required to balance and complement the production oriented Common Agriculture Policy. Some of these issues could be broached initially by the formation of an elite committee spanning Directorates General in the CEC with responsibility for food, health and consumer issues.

It is important to stress that diet is often singled out unfairly as the major cause of many health problems; however, it is only part of a much larger spectrum including lifestyle and environment etc, and it is suggested that genetic factors may be of considerable importance in predisposing humans to disease and should be the subject of increased attention and research. There is still controversy and confusion among experts concerning some of the key nutrition issues of today including recommended daily allowances, cholesterol, fat and salt issues, the role of trace elements and dietary fibre, and the effects of mild overweight. An increased interdisciplinary effort is needed to resolve uncertainties in these and other areas together with structured and informed public debate (encouraged by the CEC) between scientists, industrialists, food producers and the general public using all available communications media.

While research procedures used in human nutrition are usually well founded, some are a cause for concern. These include extrapolation of results from animal experiments to humans, and also from 'at risk' groups to whole populations. Research is sometimes funded by vested interests and there is also a tendency to 'overuse' epidemiology and to carry out nutrition and health studies with insufficient numbers of human subjects. The practice of expert groups issuing major consensus statements and/or recommendations based on a 1-2 day meeting should be discontinued; such

recommendations should be based on a number of meetings over a period of time where there is opportunity for continuing dialogue.

Extensive and continuing research is needed on some of the 'newer' roles being identified for certain 'nutrients'. These include the antithrombotic effect of fish oils and the effects of certain vegetables on platelet function, the role of vitamins C and E as free radical scavengers and the synergism between sodium and calcium in relation to hypertension. Mechanisms of energy use/disposal in man warrant further investigation as do rapid non-invasive techniques for measuring the regression of atherosclerosis.

The merits of promoting a European consensus on dietary recommendations should be explored by the CEC. In the absence of this, existing recommendations of expert groups in a number of countries could define nutrition policy in most member states. These recommendations include advice to avoid obesity, reduce fat, sugar and salt intake and increase dietary fibre consumption. This report does not contain specific target figures for these dietary components; instead the idea of moderation in eating and a balanced diet is advocated. A modest shift towards a greater consumption of fruits, vegetables, cereals and marine foods and a modest reduction in intake of foods of animal origin is desirable in the more Northern European countries. This advice is compromised to some extent by the lack of published information on dietary patterns in most member states; this points to the requirement for national food intake surveys. However, advocating certain dietary regimes for whole populations may be unnecessary, e.g. restriction of cholesterol and salt intake. Instead, the introduction of comprehensive screening programmes to identify those most at risk may be a better approach.

Economic and other incentives to dietary change must also be encouraged; these could include EEC support for leaner meat production and reduced-fat products, more EEC funded advertising for low fat dairy products and less for full fat products, the removal of certain statutory compositional standards thereby facilitating the marketing of low sugar and low fat products, predicting the response of consumers to differential pricing in closely related products, and the possible introduction of consumer subsidies to stimulate poultry, fish and cereal food consumption in most member states.

Improved consumer nutrition education is both a prerequisite to and a continuing need for dietary change and more comprehensive programmes need to be introduced by the EEC via health ministries in member states. These programmes would embrace greater understanding between scientists and media personnel, the reduction of the major differences between operating budgets of national health education organisations and the advertising expenditure of food companies, and the increased use of retail outlets as purveyors of unbiased nutritional information. More responsibility must also be taken by the EEC for the provision of impartial information to the consumer on the relative importance of potential hazards in foods, and bodies representing both agriculture and the food industry should be involved in the informing process.

In the area of agricultural production, agro-chemicals appear to pose few risks for consumers in the EEC when they are used as directed, though state-of-the-art testing should be routinely applied to key existing products. However, more harmonisation of regulations, more surveillance and monitoring, more education on agro-chemical usage, and more opportunities for reduced use of agro-chemicals need to be explored and

identified. In addition, the possible long-term effects of agro-chemicals per se and of interactions between agro-chemicals and other chemicals foreign to the body should be addressed. Changes in breeds/cultivars used, and in husbandry practices are also desirable, e.g. the production of animals and animal products containing less fat should be encouraged through pricing policy, and fundamental strategic research should be encouraged by the CEC on the biochemistry of the deposition of selected nutrients in key plant and animal species. The significance of the risk to human health of the chronic ingestion of natural toxicants in foods of plant origin is substantially underrated and more research and regulatory attention needs to be focused on this area; the regulation of all chemicals in foods (natural, added, contaminating, formed) should be dealt with on an equal basis.

The effects of processing on the wholesomeness and nutritive value of foods is also of major concern to many consumers; however, overall, food processing and storage do not give rise to toxicological or nutritional problems for the majority of consumers. It is recommended that only the most up-to-date toxicological, nutritional and analytical methodology should be used for assessing the safety, nutrient retention and bioavailability of nutrients in foods resulting from novel processes and that special attention, in this regard, be focused on processed foods intended for infants, geriatrics and those with special dietary requirements. The CEC should encourage industry (via support for specific R and D) to develop more 'health' formulations with lower levels of refined ingredients and also to explore possibilities for imitating the functional properties of key ingredients such as fat, sugar and salt in formulated foods through the use of other ingredients considered to constitute less nutritional hazard.

The risks to health from food additives appear to be exaggerated by consumers and some press comment. However, more attention should be given to the status of the limited number of food additives which cause allergic reactions or possible acute effects such as hyperactivity in children. Secondly, the possible long-term effects of additive intake per se or from possible interactions between additives and other chemicals foreign to the body have not been adequately addressed and further research is needed in this area.

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