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Feature

The FLAIR-FLOW EUROPE project aims to disseminate information about food safety, quality and nutrition to small and medium-sized enterprises within the European food industry and to consumers. This Feature outlines the background, structure and work of this cooperative European Community project.

Food R&D programmes of the European community (EC) play a vital role in the ongoing development of the European food industry. The EC provides support for strategic and innovative food R&D and a framework for a transnational and multidisciplinary approach, thus ensuring maximum interaction between scientists and technologists from academia, applied R&D institutions and the food industry. The dissemination of the results from these EC programmes to the food industry and to consumers is vitally important, and a special project called FLAIR-FLOW EUROPE has been initiated for this purpose and is described here. Its role is to disseminate results from the ongoing FLAIR (Food-Linked Agro-Industrial Research) programme to small and medium-sized food enterprises and to consumers. Before describing FLAIR-FLOW it is useful to list some of the recent and current European food R&D programmes.

European food R&D programmes

The EC has a multiplicity of ongoing research programmes¹, and a number of these have food R&D components. Currently the main food R&D programmes are FLAIR and AAIR. However, some other recent programmes (Agro-Food, FAST and COST) are also described here. All these programmes, and their component projects, are transnational and multidisciplinary, and are administered by the Commission of the European Communities (CEC).

Agro-Food and FAST

The 1979–1983 and 1984–1988 Agro-Food programmes were milestone programmes in that they researched both agricultural production techniques and the quality testing (including consumer dimensions) of the foods produced. The results of the 1979–1983 programme (on apples and tomatoes) were collated², but unfortunately this was not the case for the 1984–1988 programme, the results of which were published as isolated papers in a range of scientific journals. The EC FAST (Forecasting and Assessment in Science and Technology) programme selected food as a priority for its 1984–1987 workplan and funded a number of studies on prospects for the European food system³.

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FLAIR-FLOW EUROPE: a dissemination route to the food industry and consumers

Ronan Gormley

COST

The acronym 'COST' stands for 'European Co-operation in Scientific and Technical Research', and the COST umbrella embraces both EC and some non-EC European countries. An ad-hoc COST committee (1975) prepared a draft food technology research programme, which led to the COST 90 and COST 91 transnational European projects. COST 91 commenced with a major international symposium in Dublin in 1977⁴. COST 90 studied the physical properties of foods via sub-programmes on water activity, food rheology and thermal properties over the period 1978–1981⁵. A continuation programme, COST 90 bis (1982–1986) dealt with diffusion, electrical properties, optical properties, mechanical properties and data collection⁶. The parallel COST 91 programme (1980–1983) dealt with extrusion cooking, freezing/thawing and nutrition⁷, and its continuation project, COST 91 bis (1985–1989) dealt with high-temperature, short-time (HTST) processing, food biotechnology and chilled foods^{8–10}. The COST 90 and COST 91 projects were the forerunners of the ongoing (1989–1993) FLAIR EC programme.

FLAIR and AAIR

FLAIR involves both EC and non-EC states, and has ~600 participants and 33 transnational projects in the areas of food quality, food safety and nutrition/wholesomeness. The budget is 21 million ECU: 8 million ECU for the 11 concerted action projects (Box 1), for which the EC pays coordination costs, and 13 million ECU for the 22 shared-cost projects (Box 2), for which the EC pays up to 50% of the research costs. The 33 projects are now generating results, and these are being disseminated via FLAIR-FLOW in addition to other routes; further details about the projects are given in Ref. 11. One of the 33 projects is FLAIR-FLOW EUROPE.

A follow-on EC programme to FLAIR has already been framed, and has a budget of 333 million ECU to cover both food and non-food elements. The budget breakdown between food and non-food elements has not yet been decided, as the large number of proposals seeking funding under the programme are currently being

evaluated and vetted. This programme (1991–1994) is called AAIR (Agriculture and Agro-Industry Research, including Fisheries), and embraces the topics of food processing (safety, quality, wholesomeness and packaging), products and end-use, with emphasis on food quality and consumer aspects. The keywords of the AAIR programme are 'market-led', 'quality', 'systems-oriented' and 'innovative'.

The FLAIR-FLOW EUROPE project

Launched in October 1990, the ongoing FLAIR-FLOW EUROPE project will continue to operate in 1992 and 1993, with some carry-over activities extending into 1994. FLAIR-FLOW Europe is a cooperative project of the EC FLAIR and VALUE (Valorisation for Europe) programmes, and aims to disseminate information on food quality, food safety and nutrition/wholesomeness from the FLAIR programme to small and medium-sized food enterprises (termed 'food SMEs') and to consumers in the 12 EC states, as well as in Austria, Finland, Norway and Sweden. In EC terms, an SME is a company with up to 500 employees; there are well in excess of 100 000 food SMEs in Europe. Inception of the FLAIR-FLOW project was in response to criticism that the results from some EC food research programmes have been incompletely disseminated – results were disseminated to national organizations and institutions, but did not filter down to food SMEs and to consumers – the end users of the information. Its goal, therefore, is to bridge this gap and to provide the food industry and consumer groups with 'tailored' practical and useful information, written in layman's language, from the FLAIR programme.

Structure of FLAIR-FLOW

National networks are the kernel of the FLAIR-FLOW project and have been established and are operational in the 16 participating states; each national network has a leader and 15–20 members. Obviously, the careful selection of both national network leaders and members is of key importance in maximizing the effective flow of information throughout the network. Members belong to a wide range of organizations, and include representatives from trade journals, the media, etc., who are already disseminating information to the food industry or who have the potential to do so; in many cases, information from FLAIR can be included at little extra cost/difficulty with other ongoing information dissemination (e.g. in newsletters). The collective disseminating power of the 16 FLAIR-FLOW networks via the ~240 active network members and their downstream activities (e.g. through industry contacts and consumer groups) is immense and provides millions of potential contacts in Europe.

The 16 national network leaders together with the project leader, co-opted expertise (e.g. the Bureau Européen des Unions de Consommateurs) and officials of the CEC comprise an international network that discusses and steers FLAIR-FLOW project policy, strategy and activities; the international network meets twice

Box 1. Concerted action projects under the FLAIR programme^a

- Assessment of food quality
- Sensory analysis
- Predictive modelling (bacteria)
- Controlling poultry pathogens
- HACCP and hurdle technology
- Toxicology and residues
- Food lectins
- Micronutrient bioavailability
- Resistant starch
- Dietary intake, food composition
- Dissemination (FLAIR-FLOW)

^a Further details about the projects are given in Ref. 11

annually. The project leader and a subset of the above personnel also form a seven-member project management group.

Information flow: one-page documents

It was agreed at the outset of the FLAIR-FLOW project that information from the FLAIR programme for dissemination should be 'tailored' into one-page documents, written in layman's language, by the FLAIR-FLOW project leader/management team. Forty-six of these documents have been prepared to date and have been disseminated (in the language of each country) throughout the networks, both as paper documents and on disk. Some of the documents are general, describing the FLAIR programme and the FLAIR-FLOW project; the remainder report actual results from the research programmes (Box 3).

The documents are distributed by the project leader to network leaders, then to network members and other intermediaries (e.g. trade journals, scientific journals and the media) and finally to the food industry and consumers. Network members send the documents through their existing dissemination channels (e.g. monthly newsletters) or new routes. Other techniques for data exchange (e.g. electronic bulletin boards) are also being used in 1992. Three of the one-page documents are released per month; one in every three is aimed at consumers.

Information flow: other routes

FLAIR-FLOW also operates by initiating national workshops on FLAIR topics and by the participation of FLAIR-FLOW national network members and the project leader in trade shows, food fairs, conferences, workshops and other events where information can be disseminated. The workshops involve bringing together national personnel involved in FLAIR projects with representatives of food SMEs and/or consumer groups. A number of such workshops have already taken place and it is anticipated that network leaders in all 16 states

Box 2. Shared-cost projects under the FLAIR programme^a

Microwave and Joule heating	Food intolerance
Endogenous enzymes	Modified-atmosphere packaging of meat products
Transgenic food crops	Natural antimicrobials
Limited shelf life products	'Late blowing' of cheese
Fresh fruit mixes	Food plant sanitation
Virgin olive oil	Raw milk – cheese safety
SO ₂ and wine quality	Spoilage detection methods
Oxidoreductases	Nutritious cereal products
Fruit juice quality	In-pack thermal processing
Starters for wheat bread	Functional fibres
Dehydration technology	Probiotics for nutrition

^a Further details about the projects are given in Ref. 11

will have held at least one such workshop by mid-1992.

A series of 'INCLUSION' workshops is also planned and is seen as a powerful tool for the dissemination of information: FLAIR workshops will be included as components of food conferences/meetings/trade shows being organized by other parties. The FLAIR session would be chaired by the national network leader and the speakers would be national FLAIR participants and/or coordinators/contractors from the FLAIR programme.

Feedback

The FLAIR-FLOW project is still at an early stage in terms of feedback, as the first data sheets were only sent through the networks in late May 1991. Allowing for the time required for translations, the summer holidays, and the fact that some networks were then only in a formative stage, it would have been presumptuous to expect a high level of feedback by the end of 1991. However, despite these factors, over 200 articles have appeared in journals, magazines and elsewhere based on the one-page documents. One of the ultimate aims of the FLAIR-FLOW project is to establish one-to-one contacts between interested food SMEs and the researchers who are carrying out the actual FLAIR research. To date a number of such links have been established, and many more are anticipated.

Network leaders have been asked to quantify feedback regarding the 'readability', scope, usefulness, uptake and accuracy of reproduction of the information disseminated to trade journals, the media, etc.; to date such information has been reported accurately.

Conclusions

Several conclusions can be drawn about the success of the FLAIR-FLOW project to date.

- There is major international interest in the FLAIR-FLOW project.
- FLAIR-FLOW is both a means of disseminating information and a research project – the research relates to

Box 3. List of FLAIR-FLOW technical documents distributed from January 1991 to March 1992 to the food industry and consumer groups

Comprehensive Description of FLAIR-FLOW Europe (F-FE)
General Description of FLAIR and F-FE
Layman's Description of FLAIR Concerted Actions
Consumer Attitudes to Food Quality
Health Aspects of Food Biotechnology
Transporting Chilled Foods by Air
Controlling Pathogens in Poultry (FLAIR P6)
Sensors and Sensor Techniques
Probiotics – Fact or Fiction
Precooked Chilled Foods in Catering
Fermented Vegetables
Pasta Starch 'is best'
The TTT-PPP Concept for Chilled Foods
Preparation of Cheese Analogues
The Frozen Dough Process in Bread Production
Starter Culture Development
Modelling for Shelf Life and Safety
Dough Thawing by Microwaves and Baking by Infrared
Measuring Minerals in Foods and Tissue
Measuring Vitamins in Blood and Tissue
Resistant Starch – the State of the Art
FLAIR/ECLAIR/FOREST Technology Days
AAIR – What is it?
FLAIR-FLOW EUROPE – The First Year
Controlling Salmonella in Poultry (FLAIR P6)
The Eurofoods-Enfant Project
Predicting the Growth and Survival of Bacteria in Foods
FLAIR-FLOW Technical Documents in 1991 (pamphlet)
FLAIR-FLOW Technical Documents in 1991 (booklet)
Sensing Food Quality
Testing for Veterinary Drugs in Foods
FLAIR-FLOW EUROPE – The First Year
Have You Heard about Lectins?
Rapid Instrumental Quality Testing of Foods
Food Safety/Quality and Hurdle Technology/HACCP
Hurdle Technology
Hazard Analysis Critical Control Point

studying the effectiveness of an international network system for the dissemination of information.

- The potential collective disseminating power of the 16 FLAIR-FLOW networks is immense, and much of this potential has already been realized.

- FLAIR-FLOW is fulfilling a major role in bridging the gap between EC food R&D programmes and the end users: small food manufacturing companies and consumers.

Table 1. List of FLAIR-FLOW national network leaders

Country	Name	Address
Austria	W. Pfannhauser	Food Research Institute, Blaasstrasse 29, A-1190 Vienna, Austria
Belgium	E. de Raedt	Fédération de l'Industrie Agricole et Alimentaire, Avenue de Cortenbergh 172, bte 7, B-1040 Brussels, Belgium
Denmark	O. Tolboe	Biotechnological Institute, Food Technology Section, Ellemarksvej 49, PO Box 440, DK-8100 Aarhus C, Denmark
Finland	K. Poutanen	Technical Research Centre of Finland, Food Research Laboratory, SF-02150 Espoo, Finland
France	J. Quillien	ADRIA Quimper, Rue de l'Université 6, 29191 Quimper Cedex, France
FRG	W. Spiess	Federal Research Centre for Nutrition, Engesserstrasse 20, D-7500 Karlsruhe 1, FRG
Greece	Y. Totsiou	SPEED Ltd, Averof Street 10, 10433 Athens, Greece
Irish Republic	G. Downey	The National Food Centre, Teagasc, Dunsinea, Castleknock, Dublin 15, Irish Republic
Italy	C. Lerici	Department of Science and Technology, Università di Udine, Via Marangoni 7, I-33100 Udine, Italy
Luxembourg	R. Winkin	LUXINNOVATION, 7 rue Alcide de Gasperi, BP 1304, L-1615 Luxembourg
The Netherlands	H. van Oosten	Department of Human Nutrition, Agricultural University, PO Box 8129, 6703 EV Wageningen, The Netherlands
Norway	H. Russwurm Jr	Norwegian Food Research Institute (MATFORSK), Osloveien 1, N-1430 Ås, Norway
Portugal	J. Oliveira	College of Biotechnology, Universidade Catolica Portuguesa, R. Dr Antonio Bernardino de Almedia, 4200 Porto, Portugal
Spain	A. Cadenas	Universidad Autonoma de Madrid, Cantoblanco, 28049 Madrid, Spain
Sweden	B. Hedlund	The Swedish Food Institute, PO Box 5401, 40229 Gothenburg, Sweden
UK	S. Emmett	Leatherhead Food RA, Randalls Road, Leatherhead, UK KT22 7RY

- Dissemination in smaller countries is much easier than in larger countries – in some countries there is already saturation coverage of the food industry by existing newsletters, which should greatly facilitate the dissemination of FLAIR information by the same routes.

- Translation of the disseminated material from English is considered essential for most countries.

- The material disseminated to date has been well received, and indications are that penetration has been deep and widespread in most of the 16 participating countries.

More information

For further information about the FLAIR-FLOW project, contact your national network leader (see Table 1), the author, or the CEC, DG XII F 3 'FLAIR', Rue de la Loi, B 1049, Brussels, Belgium (tel. +32-2-2363164; fax: +32-2-2364322).

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