

## **SME OPINION ON FOOD RTD**



**FLAIR-FLOW EUROPE  
F-FE 384/00**

**September 2000**

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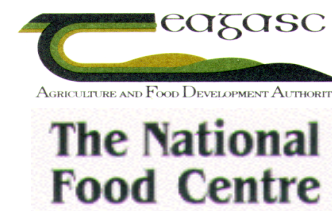
## **F-FE 384/00 [September 2000]**

The material in this booklet is the output from five separate questionnaires used to survey the opinion of European food SMEs on research and technical development (RTD), and related areas. The surveys were conducted by the FLAIR-FLOW network leaders in 17 European countries.

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For more information on the FLAIR-FLOW EUROPE Information System contact your National Network Leader or visit website <http://www.exp.ie/flair.html>

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## SUMMARY

FLAIR-FLOW EUROPE is a focused dissemination project for food companies and other end-users. It is funded by the EU FAIR and INNOVATION Programmes. Dissemination is a two-way process with feedback from end-users being equally important to the flow of information to them. This exchange was facilitated by the setting up of a 300-member platform of food SMEs across 17 of the countries participating in FLAIR-FLOW III, and conducting five questionnaire surveys with them on: **(i)** priorities for food R&D; **(ii)** sources of technical information; **(iii)** implementation of HACCP and hygiene programmes; **(iv)** participation in food R&D; and **(v)** participation in a food residue database.

**Survey 1** involved prioritising nine R&D topics using a ranking procedure. The results showed that food safety/risk perception was ranked top priority of the nine listed R&D areas. This finding is in agreement with the high level of importance currently given to food safety, both nationally and internationally.

**Survey 2** dealt with product development and technical information sources. Most companies surveyed carried out product development while technical literature, suppliers (e.g. equipment and ingredients), and 'own research' were cited as the main sources of technical information for product development. Time constraints, lack of suitable technical information, and cost were important hindering factors to the uptake/use of technical information by food companies. Summaries were the preferred format for receiving technical information, while over 55% of the food companies surveyed claimed to use the internet.

**Survey 3** assessed the implementation of HACCP and QM-ISO systems, and also training programmes by the companies. Nineteen and 46% of the 207

companies did not use HACCP or QM-ISO systems, respectively, and 15% did not fulfil the hygiene Directive on staff education. Twenty and 52% of companies did not have training programmes on hygiene/safety and production efficiency, respectively. These findings indicate a training need.

**Survey 4** was on the level of participation of food companies in R&D activities. Seventy three percent of respondees said that R&D was a strategic tool for their companies. Thirty seven, 44 and 26% of companies participated in joint R&D activities at regional, national and EU level respectively. About one third of companies were aware of the CRAFT and EUREKA programmes. 'To obtain new technology' was the main reason cited for participating in EU R&D projects, while financial considerations were the most cited of five reasons for NOT taking part in EU R&D projects.

**Survey 5** related to the development of food residue databases at European and national level. Seventy eight and 65% of the 251 companies were in favour of this development, respectively, and most said they would submit their samples for testing and allow the results to be included in the databases.

The five surveys conducted using companies from the FLAIR-FLOW platform generated useful data and complemented data obtained from an earlier SME survey conducted by the FLAIR-FLOW team in 1994.

## INTRODUCTION

FLAIR-FLOW EUROPE is a focused dissemination project for food companies (see *Food Research International*, 2000, **33**, 289-293) and other end-users. It is funded by the EU FAIR and INNOVATION Programmes and was set up in 1991 in response to a perceived need that information and research results from some European food R&D programmes should be disseminated more widely to end-users, and especially to the small and medium-sized companies, i.e. the so-called food SMEs. Dissemination is a two-way process with feedback from end-users being equally important to the flow of information to them. In this context a survey on '*RTD Needs and Opinions of European Food SMEs*' was conducted by the FLAIR-FLOW team in 1994. This involved replies from 809 food companies and the results were published in *Farm and Food*, 1995, **5(2)**, 27-30. The information was very useful and it was decided to continue SME surveys in the current (1997-2000) FLAIR-FLOW III project. This was facilitated by setting up a 300-member platform of food SMEs across 17 of the countries participating in FLAIR-FLOW III. The role of the platform was twofold: **(i)** to act in an advisory capacity to the FLAIR-FLOW project, and **(ii)** to participate in questionnaire surveys on a range of issues relating to research and technological development (RTD). The contacts between the FLAIR-FLOW national network leaders and platform members were written, verbal, and in most cases, a combination of both. Information was obtained from the platform every six months using a questionnaire and in excess of 200 food companies participated, with the exception of the first survey where 162 companies took part. The surveys were on: **(i)** priorities for food R&D; **(ii)** sources of technical information; **(iii)** implementation of HACCP and hygiene programmes; **(iv)** participation in food R&D; and **(v)** participation in a food residue database. The results of the five surveys have been collated and are presented below.

## NOTES FOR THE READER

The attention of the reader is drawn to the following points:

1. The food companies surveyed do not represent a statistical sample; they were chosen by the network leaders through personal contact.
2. There is an imbalance in the number of companies in the different size categories, and also in the different product type categories. This should be borne in mind when reading the data, especially when expressed as percentages.
3. Not all respondees answered every question in each questionnaire. This means that some data in the tables do not add to 100%.
4. This manual is entitled 'SME opinion on food RTD', and the term SME is used frequently in the text for convenience. However, circa 10% of the companies in the platform had >500 employees and so cannot be classed as SMEs.

## FLAIR-FLOW EUROPE



FLAIR-FLOW III is a co-operative project of the EU FAIR and INNOVATION programmes. It comprises a network (in 18 European countries) of circa 300 key people who disseminate food R&D results to the European food industry and to other end-users.

## SURVEY NO. 1

# Prioritisation of nine food R&D areas by food companies

## Procedure and results

The food SMEs were presented with a questionnaire which listed nine R&D topics (Table 1) and each was asked to rank the topics from the most (ranked 1) to the least (ranked 9) important. The ranks were added to give rank sums with the lowest sums showing the highest priorities and vice-versa. The results (Table 1) indicate that food safety/risk perception was a clear winner. This contrasts with the results from a previous survey of 809 food SMEs in 1995 where food safety received a lower rating in terms of large investments made in a number of areas. This shows that priorities can change in a relatively short time, due, presumably, in this case to international BSE (mad cow disease) and *E.coli* scares. The food safety area was followed by four areas which received

**Table 1: Prioritisation of nine food R&D areas by food SMEs (162 companies)**

Area	Rank	Rank sums <sup>1</sup>
Food safety/risk perception	1	522
Quality management	2	708
Process technology	3	751
Consumer preference	4	762
Raw material/ingredient optimisation	5	772
Nutrition (health)	6	833
Packaging technology	7	895
Cleaning/disinfection	8	971
Environment/energy	9	1016

<sup>1</sup>Highest priority ranked 1; lowest ranked 9 by; 162 companies took part

fairly similar rank totals, i.e. quality management, process technology, consumer preference, and raw material/ingredient optimisation. These, in turn were

followed by nutrition and packaging technology, while cleaning/disinfection and environment/energy received the lowest rankings (Table 1). It is likely that the relative rankings could change over time depending on the circumstances. For example, food safety is a current 'buzz' word; 'tomorrow' it could be 'cleaning/disinfection'.

## Conclusion from survey No.1

Food safety/risk assessment was ranked top priority of nine listed R&D areas. This finding is in agreement with the high level of importance currently given to food safety, both nationally and internationally.

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## SURVEY NO. 2

Sources of technical information for product development:

- Product development
- Technical information sources
- Factors hindering uptake of technical information
- Format of technical information
- Use of the internet

### **Procedure**

A questionnaire (see annexe 1, page 16A) was circulated to 300 food companies in 17 countries which related to **(i)** product development, **(ii)** sources of technical information for product development, **(iii)** factors hindering the use/uptake of technical information, **(iv)** the preferred format for delivering technical information, and **(v)** SME use of the internet. There were 205 responses (68%).

### **Results**

The results have been collated in summary form in Tables 2 to 13 and are related to size (i.e. number of employees) and main product type of the companies.

### **Company size and type**

Ninety two percent of the responding companies could be classed as SMEs (<500 employees) (Table 2) while bakeries predominated (17%) in the classification by company product type (Table 3). **It should be noted** that the above percentages change slightly from survey to survey [see Tables 14 and 15 (Survey 3); Tables 20 and 21 (Survey 4); Tables 32 and 33 (Survey 5)] due to the fact that not all the same companies completed the questionnaire in each survey.

### **Product development**

Most (88%) of the companies were involved in product development and the data were largely independent of company size (Table 2). Companies producing

alcohol products, soft drinks and fruit/veg/potato products had a lower involvement in product development than those in other product areas (Table 3).

### **Sources of technical information**

Technical literature, suppliers (equipment and ingredients), and ‘own research’ were cited by 31, 20 and 16% of the SMEs as their main sources of technical information for product development (Table 4). However, there were large differences in response from companies of different sizes (Table 4) and product types (Table 5). Only 3.4% of companies cited the internet as a source of technical information. This contrasts with a figure of 55% of the companies using the internet when the word internet was ‘prompted’ (i.e. do you use the internet?) (Table 10). Research institutes and seminars/workshops were cited by only 6.8 and 4.9% of companies respectively as sources of technical information for product development (Tables 4 and 5).

### **Factors hindering uptake/use of technical information**

Over 37% of the SMEs did not answer this question (Tables 6 and 7). The time factor, lack of suitable technical information, and cost were given as the main factors hindering uptake of technical information by 27, 16 and 6% of companies respectively (Table 6). There was considerable variation in response to these factors by companies of different sizes. For example, the time factor was cited by only 14% of small companies (0-20 persons) while cost was not cited as a hindering factor by the larger companies (501-1000 employees) (Table 6). Eighteen percent of bakery SMEs considered time a hindering factor compared with an overall percentage of 27% (Table 7). Lack of suitable technical information was considered more of a hindering factor by small companies than by large ones (Table 6), while prepared consumer foods

companies considered cost a more major hindering factor than did other types of companies.

### **Preferred format for technical information**

Summaries were the preferred form (cited by 48% of companies; Table 8) for technical information, followed by overviews (28%), handbooks (18%) and verbal (4%). This result supports the FLAIR-FLOW procedure of using 1-page summaries for disseminating technical information. Exceptions to this pattern were very large companies (>1000 employees) with citations of 14 and 71% for summaries and overviews respectively; large companies (501-1000 employees) 22% for overviews; small, medium and large companies with citations of 28, 6 and 0% for handbooks; and small companies citing ‘verbal’ as a desirable form for receiving technical information. ‘Outliers’ to the overall pattern were prepared consumer foods (63%) and soft drink companies (14%) for summaries; poultry (67%), ingredients (42%) and fish companies (40%) for overviews; soft drinks (57%), alcohol products (50%) and prepared consumer foods companies (8%) for handbooks; and bakery (12%) and meat (8%) companies for ‘verbal’ (Table 9).

### **Use of the internet**

It is important to establish internet usage by food SMEs since many information sources, including FLAIR-FLOW, have technical information on the internet. Over 55% of companies said they use the internet (Table 10) when asked the question directly. This contrasts with a figure of 3.4% of companies citing the internet as a source of technical information (Table 4) when the word ‘internet’ was not prompted. A greater proportion of large companies used the internet than did small ones (Table 10). On a company type basis, 80% of the fish



companies cited use of the internet compared with 35% of meat and 33% of poultry companies (Table 11). Of the 92 companies not using the internet, 64% said they would use it within one year (Table 12) with the very small and very large companies showing the lowest proposed usage. Fish (100%) and prepared consumer foods companies (70%) showed the largest proposed usage (Table 13).

### Conclusions from survey No. 2

1. Important information has been obtained from 205 food companies on product development, technical information sources, factors hindering uptake of technical information, the preferred format for technical information, and on the use of the internet.
2. Most (88%) companies surveyed carried out product development.
3. Technical literature, suppliers (e.g. equipment and ingredients), and 'own research' were cited as the main sources of technical information for product development.
4. Time constraints, lack of suitable technical information, and cost were considered the most important hindering factors to the uptake/use of technical information by food companies.
5. Summaries were the preferred format for receiving technical information, followed by overviews, handbooks, and 'verbal'.
6. Over 55% of the food companies surveyed claimed to use the internet and 64% of the remainder propose to use it within one year.

## FLAIR-FLOW EUROPE



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### Annex 1

#### Questionnaire to food SMEs in the FLAIR FLOW EUROPE platform.

Dear Colleagues,

Your help in completing this questionnaire for your company would be greatly appreciated. Your response will help to focus and streamline the provision of technical information for food SMEs Europe-wide. Thank you in advance for participating.

1. Number of employees in your company/production unit:
2. Your main product area:
3. (a.) Does your company carry out product development?  
YES  NO

(B.) If 'yes' where do you obtain/source your technical information?

Source 1	
Source 2	
Source 3	

4. What hinders your use/uptake of technical information?

1	
2	
3	

5. In what format do you like to receive your technical information? [ Please tick the (✓) preferred option]:

1. Summaries	<input type="checkbox"/>
2. Overviews	<input type="checkbox"/>
3. Handbooks	<input type="checkbox"/>
4. Verbally	<input type="checkbox"/>

6. (a.) Does your company use the internet to source technical information?

YES  NO

(b.) If 'no' do you foresee that your company will use the internet for obtaining technical information in the future?

In 1 years time	<input type="checkbox"/>	In 5 years time	<input type="checkbox"/>
In 3 years time	<input type="checkbox"/>	Never	<input type="checkbox"/>

(c.) If 'yes' how often does your company use it for this purpose?

DAILY  WEEKLY  MONTHLY

**Table 2: Company size vs product development<sup>1</sup>**

No. of employees	No. of companies in category	% of companies in category	% of companies with product development <sup>2</sup>
0-20	51	24.9	80.3
21-50	35	17.1	91.4
51-100	36	17.6	83.8
101-500	67	32.7	94.0
501-1000	9	4.4	77.8
>1000	7	3.4	100.0

<sup>1</sup>205 companies responded

<sup>2</sup>Overall: 88%

**Table 3: Company type (by product) vs product development<sup>1</sup>**

Company type (by product)	No. of companies in category	% of companies in category	% of companies with product development <sup>2</sup>
Bakery	34	16.6	100.0
Meat	26	12.9	84.6
Ingredients	24	11.7	91.7
PC foods <sup>3</sup>	24	11.7	95.8
Dairy	23	11.2	91.3
Fruit/veg/potato	23	11.2	73.9
Fish	10	4.9	100.0
Soft drinks	7	3.4	71.4
Alcohol products	4	2.0	50.0
Poultry	3	1.5	100.0
Other	27	13.2	77.8

<sup>1</sup>205 companies responded

<sup>2</sup>Overall: 88%

<sup>3</sup>Prepared consumer foods

**Table 4: Sources<sup>1</sup> of technical information for product development (% of companies)<sup>2</sup> (data by company size)**

Information source	Company size (number of employees)						Overall
	0-20	21-50	51-100	101-500	501-1000	>1000	
Technical literature	31.3	34.3	22.2	32.8	33.3	42.9	<b>31.2</b>
Suppliers <sup>3</sup>	11.8	22.9	19.4	23.9	33.3	0.0	<b>19.5</b>
Own research	15.7	14.3	25.0	13.4	0.0	28.6	<b>16.1</b>
Research institutes	7.8	5.7	8.3	7.5	0.0	0.0	<b>6.8</b>
Seminars	5.9	2.9	8.3	1.5	0.0	28.6	<b>4.9</b>
Internet	5.9	5.7	0.0	3.0	0.0	0.0	<b>3.4</b>
Consultants	0.0	2.9	2.8	4.5	11.1	0.0	<b>2.9</b>
Competitors	3.9	0.0	0.0	0.0	0.0	0.0	<b>1.0</b>
Trade associations	0.0	0.0	0.0	1.5	0.0	0.0	<b>0.5</b>
Not answered	17.6	11.4	13.9	11.9	22.2	0.0	<b>13.7</b>

<sup>1</sup>Based on first source quoted

<sup>2</sup>205 companies responded

<sup>3</sup>Equipment and ingredient suppliers

**Table 5: Sources<sup>1</sup> of technical information for product development (% of companies)<sup>2</sup> (data by company type)**

Information source	Company type								Overall
	Bakery	Meat	Ingredients	PC foods <sup>3</sup>	Dairy	Fruit/veg	Fish	Other <sup>4</sup>	
Technical literature	35.3	34.6	50.0	29.2	26.1	17.4	20.0	29.3	31.2
Suppliers <sup>5</sup>	23.5	23.1	8.3	20.8	21.7	21.7	50.0	9.8	19.5
Own research	20.6	7.7	12.5	20.8	26.1	26.1	0.0	9.8	16.1
Research institutes	11.8	7.7	8.3	8.3	0.0	4.3	0.0	7.3	6.8
Seminars	5.9	11.5	0.0	4.2	13.0	0.0	0.0	2.4	4.9
Internet	0.0	0.0	8.3	0.0	0.0	4.3	0.0	9.8	3.4
Consultants	0.0	0.0	4.2	0.0	4.3	0.0	30.0	2.4	2.9
Competitors	2.9	0.0	0.0	0.0	0.0	0.0	0.0	2.4	1.0
Trade associations	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.5
Not answered	0.0	15.4	8.3	16.7	8.7	26.0	0.0	24.3	13.7

<sup>1</sup>Based on first source quoted

<sup>2</sup>205 companies responded

<sup>3</sup>Prepared consumer foods

<sup>4</sup>Other<sup>4</sup> category has been enlarged to include soft drinks, alcohol and poultry companies (see Table 3)

<sup>5</sup>Equipment and ingredient suppliers

**Table 6: Factors<sup>1</sup> hindering the use/uptake of technical information (% of companies)<sup>2</sup> (data by company size)**

Factor <sup>1</sup>	Company size (number of employees)						Overall
	0-20	21-50	51-100	101-500	501-1000	>1000	
Time	13.7	31.4	25.0	34.3	44.4	28.6	27.2
Lack of suitable info.	15.7	17.1	16.7	16.4	11.1	14.3	16.2
Cost	11.8	8.6	5.6	1.5	0.0	0.0	5.8
Language	0.0	2.9	0.0	4.5	11.1	0.0	2.9
Personnel	2.0	2.9	0.0	3.0	0.0	14.3	2.4
Equipment	0.0	0.0	8.3	3.0	0.0	0.0	2.4
Excess information	0.0	2.9	0.0	1.5	11.1	14.3	1.9
Market	0.0	0.0	5.6	0.0	11.1	0.0	1.5
No factor	2.0	0.0	2.8	1.5	0.0	0.0	1.5
Access to internet	2.0	0.0	2.8	0.0	0.0	0.0	1.0
Not answered	52.9	34.3	33.3	34.3	11.1	28.6	37.4

<sup>1</sup>Based on first source quoted

<sup>2</sup>205 companies responded

**Table 7: Factors<sup>1</sup> hindering the use/uptake of technical information (% of companies)<sup>2</sup> (data by company type)**

Information source	Company type							Overall	
	Bakery	Meat	Ingredients	PC foods <sup>3</sup>	Dairy	Fruit/veg	Fish		Other <sup>4</sup>
Time	17.6	26.9	25.0	37.5	30.4	26.1	30.0	26.8	27.2
Lack of suitable info.	5.9	7.7	4.2	12.5	26.1	26.1	40.0	22.0	16.2
Cost	8.8	3.8	4.2	12.5	4.3	4.3	0.0	7.3	5.8
Language	0.0	3.8	16.7	0.0	0.0	4.3	0.0	0.0	2.9
Personnel	0.0	3.8	8.3	0.0	0.0	0.0	0.0	4.9	2.4
Equipment	2.9	7.7	4.2	4.2	0.0	0.0	0.0	0.0	2.4
Excess information	2.9	3.8	4.2	0.0	4.3	0.0	0.0	0.0	1.9
Market	0.0	3.8	0.0	0.0	8.7	0.0	0.0	0.0	1.5
No factor	0.0	3.8	0.0	4.2	0.0	0.0	0.0	2.4	1.5
Access to internet	2.9	0.0	0.0	4.2	0.0	0.0	0.0	0.0	1.0
Not answered	58.8	34.6	33.3	25.0	26.1	39.1	30.0	36.6	37.4

<sup>1</sup>Based on first source quoted

<sup>2</sup>205 companies responded

<sup>3</sup>Prepared consumer foods

<sup>4</sup>'Other' category has been enlarged to include soft drinks, alcohol and poultry companies (see Table 3)

**Table 8: Preferred format for receiving technical information (data by company size)<sup>1</sup>**

No. of employees	% of companies preferring:				No answer (%)
	Summaries	Overviews	Handbooks	Verbal	
0-20	35.3	21.6	27.5	9.8	5.9
21-50	51.4	22.9	17.1	8.6	0.0
51-100	63.9	30.6	5.6	0.0	0.0
101-500	47.8	31.3	20.9	0.0	0.0
501-1000	77.8	22.2	0.0	0.0	0.0
>1000	14.3	71.4	14.3	0.0	0.0
<b>Overall</b>	<b>48.3</b>	<b>28.3</b>	<b>18.0</b>	<b>3.9</b>	<b>1.5</b>

<sup>1</sup>205 companies responded

**Table 9: Preferred format for receiving technical information (data by company type)<sup>1</sup>**

Company type (by product)	% of companies preferring:				No answer (%)
	Summaries	Overviews	Handbooks	Verbal	
Bakery	44.1	20.6	23.5	11.8	0.0
Meat	57.7	19.2	15.4	7.7	0.0
Ingredients	45.8	41.7	12.5	0.0	0.0
PC foods <sup>2</sup>	62.5	25.0	8.3	4.2	0.0
Dairy	52.2	34.8	13.0	0.0	0.0
Fruit/veg	52.2	26.1	17.4	0.0	4.3
Fish	50.0	40.0	10.0	0.0	0.0
Soft drinks	14.3	28.6	57.1	0.0	0.0
Alcohol products	25.0	25.0	50.0	0.0	0.0
Poultry	33.3	66.6	0.0	0.0	0.0
Other	40.7	25.9	22.2	3.7	7.4

<sup>1</sup>205 companies responded

<sup>2</sup>Prepared consumer foods

**Table 10: Percentage of companies<sup>1</sup> using the internet for technical information (data by company size)<sup>1</sup>**

No. of employees	% of companies using internet <sup>1</sup>	Frequency of use (%) <sup>2</sup>		
		Daily	Weekly	Monthly
0-20	56.9	13.8	44.8	41.4
21-50	42.9	20.0	53.3	26.7
51-100	55.6	20.0	40.0	40.0
101-500	53.7	27.8	44.4	27.8
501-1000	88.9	25.0	50.0	25.0
>1000	71.4	40.0	40.0	20.0
<b>Overall</b>	<b>55.1</b>	<b>22.1</b>	<b>45.1</b>	<b>32.7</b>

<sup>1</sup>205 companies responded

<sup>2</sup>Calculation of percentage based on the 113 companies that used the internet

**Table 11: Percentage of companies<sup>1</sup> using the internet for technical information (data by company type)<sup>1</sup>**

Company type (by product)	% of companies using internet <sup>1</sup>	Frequency of use (%) <sup>2</sup>		
		Daily	Weekly	Monthly
Bakery	54.2	15.4	53.8	30.8
Meat	34.6	0.0	55.6	44.4
Ingredients	62.5	40.0	26.7	33.3
PC foods <sup>3</sup>	58.3	28.6	42.9	28.6
Dairy	47.8	18.2	45.5	36.4
Fruit/veg	56.5	15.4	76.9	7.7
Fish	80.0	12.5	25.0	62.5
Other <sup>4</sup>	75.6	26.7	40.0	33.3

<sup>1</sup>205 companies responded; <sup>2</sup>see footnote (Table 10); <sup>3</sup>Prepared consumer foods

<sup>4</sup>'Other' category has been enlarged to include soft drinks, alcohol and poultry companies

**Table 12: Proposed use of the internet by the 92 companies not currently using it (data by company size)**

No. of employees	Proposed use (% of companies) within:			
	1 year	3 years	5 years	Never
0-20	47.6	23.8	14.3	14.3
21-50	70.0	25.0	5.0	0.0
51-100	62.5	25.0	6.3	6.3
101-500	67.7	22.6	3.2	6.5
501-1000	100.0	0.0	0.0	0.0
>1000	50.0	50.0	0.0	0.0
<b>Overall</b>	<b>63.7</b>	<b>24.2</b>	<b>5.5</b>	<b>6.6</b>

**Table 13: Proposed use of the internet by the 92 companies not currently using it (data by company type)**

Company type (by product)	Proposed use (% of companies) within:			
	1 year	3 years	5 years	Never
Bakery	61.9	23.8	14.3	0.0
Meat	52.9	35.3	0.0	11.8
Ingredients	66.7	22.2	0.0	11.1
PC foods <sup>1</sup>	70.0	20.0	10.0	0.0
Dairy	58.3	33.3	8.3	0.0
Fruit/veg	60.0	20.0	0.0	20.0
Fish	100.0	0.0	0.0	0.0
Other <sup>2</sup>	80.0	10.0	0.0	10.0

<sup>1</sup>Prepared consumer foods

<sup>2</sup>'Other' category has been enlarged to include soft drinks, alcohol and poultry companies

## FLAIR-FLOW EUROPE



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# SURVEY NO. 3

Use of HACCP, QM-ISO and hygiene training:

- No. of graduates/engineers employed
- Use of HACCP and QM-ISO
- Fulfilment of hygiene Directive
- Company training programmes
- Technical manuals

## **Procedure**

A questionnaire (see annexe 2, page 31A) was circulated to 300 food SMEs in 17 countries which related to **(i)** number of graduates and engineers employed, **(ii)** use of HACCP and QM-ISO systems, **(iii)** fulfilment of the Directive on hygiene education of staff, **(iv)** company training programmes, and **(v)** technical manuals. There were 207 responses (69%).

## **Results**

The results have been collated in summary form in Tables 14 to 19 and are related to size (i.e. number of employees) and main product type of the companies.

### **Company size and type**

Ninety one percent of the responding companies could be classed as SMEs (<500 employees) (Table 14) while bakeries predominated (20%) in the classification by company product type (Table 15). **It should be noted** that the above percentages change slightly from survey to survey [see Tables 2 and 3) (Survey 2); Tables 20 and 21 (Survey 4); Tables 32 and 33 (Survey 5)] due to the fact that not all the same companies completed the questionnaire in each survey.

### **No. of graduates and engineers employed**

Small companies had more graduate staff as a percentage of total staff than large companies (Table 14). However, there was a huge variation between individual companies as evidenced by the large coefficients of

variation (CV). Average values for the number of graduates and engineers employed ranged from 8.8 to 2.7% for the former, and 8.1 to 2.1% for the latter, respectively (Table 14). Smaller companies, especially the second size category (Table 14), tended to have more engineers as a percentage of total staff than the larger company categories; CVs were again high showing large inter company variation within a given size sector.

The breakdown by product type is given in Table 15. Twenty percent of the companies were bakeries while only 1.4% were in soft drinks. Ingredients, fish and 'alcohol' companies had the most graduates as a proportion of total staff, and bakery, poultry and meat companies the least; CVs were very large. Ingredients, fruit/veg/potato, and 'alcohol' companies had the highest proportion of engineers relative to other staff types, while bakeries, poultry and meat companies had the lowest (Table 15). It should be noted (Tables 14 and 15) that the percentage of engineers is, (on a few occasions), higher than the percentage of graduates for a given company size or product type. This may be due to different interpretations of the word 'engineer' in different countries and/or that some engineers may not be graduates.

The widely different number of graduates and engineers (as a proportion of total staff) employed by the companies may also indicate wide differences in the technological capabilities of the companies. **The average number of graduates and engineers employed, as a percentage of total staff numbers, was 7.1 (CV=102%) and 5.3% (CV=104%), respectively, in the test sample of 207 companies.**

### **HACCP, QM-ISO, hygiene Directive**

Large companies were more likely to have HACCP and QM-ISO systems in-house than smaller companies (Table 16). Similarly for the fulfilment of the Directive on hygiene education of the staff. The corresponding results broken down by company type were very variable (Table 17). Thirty-eight and 35% of 'alcohol' and bakery companies, respectively, had no HACCP system. Ingredients and poultry companies had a greater implementation of QM-ISO in-company than did the other SMEs. Fulfilment of the hygiene Directive was best in fish and soft drink firms and least good in 'alcohol', poultry, and fruit/veg./potato SMEs (Table 17).

**The overall figures for not having/fulfilling HACCP, QM-ISO and the hygiene Directive were 19.4, 46.1 and 14.6% for the 207 companies respectively. This indicates a major training requirement.**

### **Training programmes for company staff**

All the large companies (18) in the sample had training programmes in hygiene/safety for their staff (Table 18), whereas 57% of the very small companies did not. There was a similar pattern for training in production efficiency except that all percentages (for no training) were much higher than for hygiene/safety; values for no training in production efficiency ranged from 68% (0-20 person companies) to 17% (>1000 person companies) (Table 18).

All the soft drinks and fruit/veg/potato companies had training programmes in hygiene/safety; this contrasts with poultry companies where 40% had no training (Table 19). Poultry (80%) and dairy

companies (72%) had the highest level of 'no training' in production efficiency; these figures correspond with 33, 41 and 45% for soft drinks, fish, and prepared consumer foods companies respectively. (Table 19). Of the 172 companies that did have training programmes, 56% held them yearly, 12% every second year, and 32% less often.

### Training manuals

The food companies were asked to log the topics/areas where it would be useful to have technical manuals to support their training programmes; there was sufficient space on the questionnaire for four replies per company. Thirty percent of the 207 companies did not reply to this question, but for those that did there was a concentration of requirement in eight areas. The response was largely independent of SMEs size and product type. The percentage of SMEs citing these areas was as follows:

1. Safety/hygiene	57%
2. QM-ISO	14%
3. Production efficiency	12%
4. HACCP	11%
5. Process technology	10%
6. Assessing product quality	5%
7. Sanitation/cleanability	4%
8. Waste mgt/environment	4%

HACCP is included as a separate item even though it is part of food safety.

Training manuals on food safety/hygiene were a clear 'first'. A sub-set of interest within food safety was the production of a '**routine microbiology manual**' embracing proven easy-to-use rapid techniques. Process technology (including minimal processing) referred to a range of products depending on the product mix of different SMEs. FLAIR-FLOW training manuals have been prepared on ready-to-use vegetables, factory cleanability (i.e. sanitation), the cold chain (quality and safety), microbial control in meat (safety), and on fish quality (quality). All five, therefore, are in the areas identified above. A HACCP manual was produced in the FLAIR programme and should be updated in view of the response above.

Hungarian SMEs requested information on **training opportunities** for food factory personnel. The EU should, therefore, commission an inventory of food training opportunities in Europe, especially for technologists and operatives in emerging countries.

Other areas of interest for training manuals arising from the current survey were: procedures for identifying **market opportunities, logistics, interpretation of regulations and legislation, product development, and computer skills.**

### Conclusions from survey No. 3

1. Information was obtained from 207 food companies on **(i)** number of graduates and engineers employed, **(ii)** use of HACCP and QM-ISO systems, **(iii)** fulfilment of the Directive on hygiene education of staff, **(iv)** company training programmes, and **(v)** requirement for technical training manuals.



2. The average number of graduates and engineers employed by the 207 food SMEs was 7.1 and 5.3% respectively as a percentage of total staff numbers. There was a very large inter-company variation.
3. Nineteen and 46% of the 207 companies did not use HACCP or QM-ISO systems, respectively, and 15% did not fulfil the hygiene Directive on staff education. This indicates a major training requirement.
4. Twenty and 52% of companies did not have training programmes on hygiene/safety and production efficiency, respectively. This again indicates a training need.
5. The five top priority areas identified for training manuals were safety/hygiene (requested by 57% of the 207 SMEs), QM-ISO (14%), production efficiency (12%), HACCP (11%) and process technology (10%).

**FLAIR-FLOW EUROPE**



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**Annex 2**

**Questionnaire (April – September 1999) to food SMEs in the FLAIR FLOW EUROPE platform.**

Dear Colleagues,

Your help in completing this questionnaire for your company would be greatly appreciated. Your response will help to focus and streamline the provision of technical information for food SMEs Europe-wide. Thank you in advance for participating.

1. (a.) Number of employees in your company/production   
 (b.) Number of university graduates   
 (c.) Number of engineers

2. Your main product area:

3. Does your company have:
- |                   |     |                          |    |                          |
|-------------------|-----|--------------------------|----|--------------------------|
| a. HACCP system?  | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> |
| b. QM-ISO system? | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> |

4. Does your company fulfil the directive on hygiene education for the staff?  
 YES  NO

5. Does your company carry out training programmes for staff in:
- |                          |     |                          |    |                          |
|--------------------------|-----|--------------------------|----|--------------------------|
| 1. hygiene/safety        | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> |
| 2. production efficiency | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> |
| 3. other .....           | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> |

If 'yes', is it: YEARLY  every SECOND YEAR  OTHER

6. In what area (i.e. on what topics) would you like to have technical manuals to support your training?
- |    |                      |
|----|----------------------|
| 1. | <input type="text"/> |
| 2. | <input type="text"/> |
| 3. | <input type="text"/> |
| 4. | <input type="text"/> |

**Table 14: Company size vs no. of graduates and engineers employed**

No. of employees	No. of companies in category <sup>1</sup>	% of companies in category		% Graduates <sup>2</sup>		% Engineers <sup>2</sup>	
		Average	%CV <sup>3</sup>	Average	%CV <sup>3</sup>	Average	%CV <sup>3</sup>
0-20	35	16.9	8.6	160	4.5	193	
21-50	32	15.5	8.8	75	8.1	164	
51-100	40	19.3	6.8	97	5.0	126	
101-500	82	39.6	6.4	86	5.2	85	
501-1000	12	5.8	5.4	85	2.1	70	
>1000	6	2.9	2.7	111	4.7	124	

<sup>1</sup>207 companies responded

<sup>2</sup>Average values as % of total employees

<sup>3</sup>Coefficient of variation (%)

**Table 15: Company type (by product) vs no. of graduates and engineers employed**

Company type (by product)	No. of companies in category <sup>1</sup>	% of companies in category		% Graduates <sup>2</sup>		% Engineers <sup>2</sup>	
		Average	%CV <sup>3</sup>	Average	%CV <sup>3</sup>	Average	%CV <sup>3</sup>
Bakery	42	20.3	3.9	138	2.0	155	
PC foods <sup>4</sup>	31	15.0	7.3	79	5.7	123	
Meat	27	13.0	4.6	100	2.3	117	
Fruit/veg	26	12.6	5.7	109	7.2	83	
Dairy	22	10.6	7.8	77	3.8	92	
Ingredients	21	10.1	11.6	74	11.7	137	
Fish	12	5.8	11.5	157	5.9	124	
Alcohol	8	3.9	10.4	91	7.2	82	
Poultry	5	2.4	4.1	93	2.1	124	
Soft drinks	3	1.4	8.4	18	5.8	69	
Other	10	4.8	9.8	100	7.8	86	

<sup>1</sup>207 companies responded

<sup>2</sup>Average as % of total employees

<sup>3</sup>Coefficient of variation (%)

<sup>4</sup>Prepared consumer foods

**Table 16: Company size vs HACCP, QM-ISO and hygiene Directive**

No. of employees	No. of companies in category <sup>1</sup>	% companies <b>NOT</b> having/fulfilling:		
		HACCP	QM-ISO	Hygiene Directive <sup>2</sup>
0-20	35	40.5	85.7	32.4
21-50	32	12.5	62.5	15.6
51-100	40	22.5	51.2	17.5
101-500	82	15.2	21.8	7.6
501-1000	12	0.0	33.3	0.0
>1000	6	0.0	33.3	0.0

<sup>1</sup>207 companies participated; <sup>2</sup>Directive on hygiene education of staff

**Table 17: Company type (by product) vs HACCP, QM-ISO and hygiene Directive**

Company type (by product)	No. of companies in category <sup>1</sup>	% of companies <b>NOT</b> having/fulfilling:		
		HACCP	QM-ISO	Hygiene Directive <sup>2</sup>
Bakery	42	35.3	78.0	17.1
PC foods <sup>3</sup>	31	9.7	31.2	9.7
Meat	27	11.1	66.6	11.1
Fruit/veg./potato	26	4.2	25.0	20.8
Dairy	22	0.0	59.1	9.1
Ingredients	21	14.3	15.0	19.0
Fish	12	16.7	41.7	0.0
Alcohol	8	37.5	37.5	25.0
Poultry	5	0.0	20.0	20.0
Soft drinks	3	33.3	33.3	0.0
Other	10	50.0	20.0	25.0

<sup>1</sup>207 companies participated; <sup>2</sup>Directive on hygiene education of staff

<sup>3</sup>Prepared consumer foods

**Table 18: Company size vs training programmes for staff**

No. of employees	No. of companies in category	% companies <b>NOT</b> having staff training programmes in:	
		Hygiene/safety	Production efficiency
0-20	35	56.7	67.6
21-50	32	12.5	53.1
51-100	40	12.5	51.2
101-500	82	5.1	49.4
501-1000	12	0.0	41.2
>1000	6	0.0	16.7

<sup>1</sup>207 companies participated

**Table 19: Company type (by product) vs training programmes for staff**

Company type (by product)	No. of companies in category <sup>1</sup>	% of companies <b>NOT</b> having staff training programmes in:	
		Hygiene/safety	Production efficiency
Bakery	42	24.4	51.2
PC foods <sup>2</sup>	31	9.7	45.2
Meat	27	11.1	55.6
Fruit/veg	26	0.0	62.5
Dairy	22	27.3	72.3
Ingredients	21	9.5	50.0
Fish	12	25.0	41.2
Alcohol	8	25.0	50.0
Poultry	5	40.0	80.0
Soft drinks	3	0.0	33.3
Other	10	25.0	20.0

<sup>1</sup>207 companies participated

<sup>2</sup>Prepared consumer foods

## **FLAIR-FLOW EUROPE**



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# SURVEY No. 4

## SME participation in food R&D

- R&D: a strategic company tool?
- Participation in R&D
- Awareness of European programmes for SMEs
- Reasons for taking part, or NOT taking part, in EU R&D projects
- Factors aiding SME participation in European joint research projects

### **Procedure**

A questionnaire (see annexe 3, page 41A) was circulated to 300 food companies (mostly SMEs) in 17 countries which related to **(i)** use of R&D as a strategic in-company tool, **(ii)** company participation in R and D, **(iii)** awareness of European programmes for SMEs, and **(iv)** reasons for taking part, or NOT taking part, in EU R&D projects. There were 208 responses (69%).

### **Results**

The results have been collated in summary form in Tables 20 to 31 and are related to size (i.e. number of employees) and main product type of the companies.

#### **Company size and type**

Ninety two percent of the responding companies could be classed as SMEs (<500 employees) (Table 20) while bakeries predominated (19%) in the classification by company product type (Table 21). It should be noted that the above percentages change slightly from survey to survey [see Tables 2 and 3 (Survey 2); Tables 14 and 15 (Survey 3); Tables 32 and 33 (Survey 5)] due to the fact that not all the same companies completed the questionnaire in each survey.

#### **R&D as a strategic tool**

Seventy three percent of respondents said that R&D was a strategic tool for their companies (Table 20). Very small (0-20 employees) and very large (>1000 employees) companies gave a lower 'yes' response than companies of intermediate size (Table 20). Ingredients and prepared consumer foods companies gave the highest 'yes' response, and dairy and alcohol companies the lowest (Table 21). The dairy company response was unexpected as these

companies are usually highly involved in R&D. The high 'yes' figure for ingredients and prepared consumer foods companies was anticipated as these companies are usually at the cutting edge of new developments and technology.

### **Participation in joint R&D**

Participation by companies in joint R and D activities at regional, national and EU level was 37, 44 and 26% respectively (Table 22). These figures are relatively low and a greater level of participation should be encouraged. The level of participation in joint R&D at EU level was reasonably satisfactory in view of the difficulties in establishing partnerships and completing detailed application forms. Participation, overall, was greatest for the bigger companies while the figure was relatively constant at regional and at EU levels for participation by the four size categories of SMEs. However, the very small companies (0-20 employees) had the lowest participation (25%) at national level; this contrasted with a figure of 78% for the very large companies (Table 22). The breakdown of the data by company type (Table 23) was highly variable with the exception of ingredients companies who had the highest participation in all three categories. The second and third highest levels of participation were in fish and soft drinks companies at regional level, in poultry and prepared consumer foods companies at national level; and in soft drinks and prepared consumer foods companies at EU level (Table 23).

### **Awareness of European programmes for food companies**

About one third of companies were aware of the CRAFT and EUREKA programmes (Table 24). This is disappointingly low in view of the amount of publicity given to these programmes. As expected, small companies were more aware of the CRAFT programme than large companies, while the opposite was

the case for the EUREKA programme (Table 24). Dairy, ingredients, and alcohol companies were the most aware of the CRAFT programme, and poultry, prepared consumer foods and alcohol companies of the EUREKA programme (Table 25). The least aware companies were those in the fruit/vegetable and fish areas (CRAFT programme) and in fish and bakery products (EUREKA programme).

### **Reasons for participating in EU R&D projects**

'To obtain new technology' was the main reason cited (43% of companies) for participating in EU R&D projects (Table 26). Cost sharing, new markets and obtaining international experience were other reasons for participating, and were each cited by 27 to 30% of the companies. Large (>1000 personal) companies responded 'strongly' to all four specified reasons (Table 26) while smaller companies generally gave a weaker response. The breakdown of the data by company type is given in Table 27. Only 9% of fish companies cited 'cost sharing' as a reason for taking part in EU R&D projects. Other low citations were 13% of meat companies (in relation to new markets), and 24% of dairy companies (in relation to obtaining new technology).

### **Reasons for NOT participating in EU R&D projects**

Financial considerations, and also lack of management capability, were the most cited of the five reasons (Table 28) for NOT taking part in EU projects, especially in the case of the smaller companies. Language difficulties and form filling were also major barriers for the very small (<20 employees) companies (Table 28). A breakdown of the data by company type (Table 29) indicated that language difficulties were a particular problem for meat, bakery and dairy companies; similarly lack of management capability was cited by dairy and

fruit/veg companies, 'financial' by dairy companies, and 'form filling' by dairy and poultry companies. A salient feature of the data was that a relatively high proportion of dairy companies found all four aspects (Table 29) as impediments to taking part in EU R&D projects.

### **Factors aiding participation in European joint research**

The companies were asked to prioritise four factors which would increase their interest in participating in European joint research. 'Assistance in identifying the R&D task' received the highest priority of the four (Table 30), and 'having a visiting technologist in-factory' the lowest. The trends were more variable, however, when the data were broken down by company size or product type. For example, more small companies (<100 employees) cited 'assistance in identifying the R&D task, 'writing the project proposal, and 'having a visiting technologist in-factory' than did larger (>100 employees) companies (Table 30). Conversely, higher percentages of large companies cited 'participating in an international network' as an incentive to joining in European research projects (Table 30). Only a small percentage (14%) of ingredients companies cited 'assistance in identifying the R&D task' as a major incentive to participating (Table 31); all other company types responded more positively to this factor. 'Assistance with writing the proposal' was identified most frequently by poultry, dairy and meat companies (Table 31), while over 50% of the poultry, alcohol, and dairy companies considered having a visiting technologist in-factory' as an incentive to engaging in European joint research.

### **Conclusions**

1. Information was obtained from 208 food SMEs on **(i)** use of R&D as a strategic in-company tool, **(ii)** company participation in R&D, **(iii)**

awareness of European programmes for SMEs, and **(iv)** reasons for taking part, or not taking part in EU R&D projects.

2. Seventy three percent of respondees said that R&D was a strategic tool for their companies. Ingredients and prepared consumer foods companies gave the highest 'yes' response to this question.
3. Thirty seven, 44 and 26% of companies participated in joint R&D activities at regional, national and EU level respectively. These figures are relatively low and a greater level of participation should be encouraged.
4. About one third of companies were aware of the CRAFT and EUREKA programmes. This is a low figure in view of the amount of publicity given to these programmes.
5. 'To obtain new technology' was the main reason cited (by 43% of companies) for participating in EU R&D projects.
6. Financial considerations, and also lack of management capability, were the most cited of five reasons for NOT taking part in EU R&D projects, especially by small companies.
7. 'Assistance in identifying the R&D task' received the highest priority of four factors which would increase SME interest in participating in joint European research projects.

### Annex 3

#### Questionnaire (October 1999 – January 2000) to food SMEs in the FLAIR FLOW EUROPE platform.

Dear Colleagues,

Your help in completing this questionnaire for your company would be greatly appreciated. Your response will help to focus and streamline the provision of technical information for food SMEs Europe-wide. Thank you in advance for participating.

### FLAIR-FLOW EUROPE



FLAIR-FLOW III is a co-operative project of the EU FAIR and INNOVATION programmes. It comprises a network (in 18 European countries) of circa 300 key people who disseminate food R&D results to the European food industry and to other end-users.

- Number of employees in your company/production unit:
- Your main product area:
- Is R&D a strategic tool for your company?

YES  NO

- Have you participated in joint R&D activities at:

Regional,		National,		Or EU level?	
YES		YES		YES	
NO		NO		NO	

- Are you aware of European programmes for SMEs?

CRAFT		EUREKA		OTHER	
YES		YES		YES	
NO		NO		NO	

- What are your primary reasons for **taking part** in EU R&D projects?

Cost sharing	
New markets	
International experience	
Obtaining new technology	
Other	

- What are your primary reasons for **NOT taking part** in EU R&D projects?

Language difficulties	
Lack of management capability	
Financial	
Form filling	
Other	

- What would increase your company's interest in participating in European joint research?

Assistance to identify R&D task	
Assistance with writing proposal	
Taking part in an international network	
Having a visiting 'out-placed' technologist in your company	
Other	

Table 20: Company size vs R&D as a strategic tool

No. of employees	No. of companies in category	Is R&D a strategic tool for your company	
		Yes (%)	No (%)
0-20	49	59.2	40.8
21-50	32	65.6	34.4
51-100	38	78.9	15.8
101-500	72	81.9	11.1
501-1000	8	100.0	0.0
> 1000	9	55.5	33.3
<b>Overall</b>	<b>208</b>	<b>73.1</b>	<b>23.1</b>

<sup>1</sup>Yes + No = 100% except where some SMEs did not answer the question

**Table 21: Company type (by product) vs R&D as a strategic tool**

Company type (by product)	No. of companies in category	% of companies in category	Is R&D a strategic tool for your company? <sup>1</sup>	
			Yes (%)	No (%)
Bakery	40	19.2	57.5	40.0
PC foods <sup>2</sup>	28	13.5	89.3	10.7
Meat	23	11.1	82.6	13.0
Dairy	21	10.1	42.9	47.9
Fruit/veg	15	7.2	80.0	20.0
Ingredients	14	6.7	100.0	0.0
Fish	11	5.3	81.8	18.2
Soft drinks	8	3.8	75.0	25.0
Alcohol	6	2.9	33.3	33.3
Poultry	5	2.4	60.0	20.0
Other	37	17.8	81.1	16.2
<b>Overall</b>	<b>208</b>	<b>100</b>	<b>73.1</b>	<b>23.1</b>

<sup>1</sup>Yes + No = 100% except where some SMEs did not answer the question

<sup>2</sup>Prepared consumer foods

**Table 22: Company size vs participation in joint R&D at regional, national or EU level**

No. of employees	No. of companies in category	Regional level		National level		EU level	
		Yes (%) <sup>1</sup>	No (%) <sup>1</sup>	Yes (%) <sup>1</sup>	No (%) <sup>1</sup>	Yes (%) <sup>1</sup>	No (%) <sup>1</sup>
0-20	49	36.7	50.0	24.5	67.3	20.4	73.5
21-50	32	34.4	62.5	40.6	59.4	18.8	81.3
51-100	38	39.5	47.4	44.7	44.7	18.4	65.8
101-500	72	31.9	41.7	52.8	36.1	33.3	48.6
501-1000	8	62.5	37.5	50.0	37.5	37.5	50.0
>1000	9	55.5	33.3	77.8	22.2	44.4	55.6
<b>Overall</b>	<b>208</b>	<b>37.0</b>	<b>47.1</b>	<b>43.8</b>	<b>48.1</b>	<b>26.0</b>	<b>63.0</b>

<sup>1</sup>Yes + No = 100% except where some SMEs did not answer the question



**Table 23: Company type (by product) vs participation in joint R&D at regional, national or EU level**

Company type (by product)	No. of companies in category	Regional level		National level		EU level	
		Yes (%) <sup>1</sup>	No (%) <sup>1</sup>	Yes (%) <sup>1</sup>	No (%) <sup>1</sup>	Yes (%) <sup>1</sup>	No (%) <sup>1</sup>
Bakery	40	27.5	55.0	35.0	52.5	20.0	67.5
PC foods <sup>2</sup>	28	32.1	50.0	53.6	42.9	35.7	46.4
Meat	23	43.5	30.4	43.5	43.5	17.4	60.9
Dairy	21	28.6	61.9	28.6	66.7	14.3	76.2
Fruit/veg	15	35.7	50.0	46.7	33.3	26.7	60.0
Ingredients	14	64.3	21.4	78.6	14.3	57.1	42.9
Fish	11	54.5	45.5	27.3	63.6	18.2	63.6
Soft drinks	8	50.0	50.0	25.0	75.0	37.5	62.5
Alcohol	6	33.3	50.0	16.7	66.7	16.7	66.7
Poultry	5	20.0	60.0	60.0	40.0	0.0	100.0
Other	37	37.8	45.9	51.4	45.9	29.7	67.6
<b>Overall</b>	<b>208</b>	<b>37.0</b>	<b>47.1</b>	<b>43.8</b>	<b>48.1</b>	<b>26.0</b>	<b>63.0</b>

<sup>1</sup>Yes + No = 100% except where some SMEs did not answer the question

<sup>2</sup>Prepared consumer foods

**Table 24: Company size vs awareness of European programmes for SMEs**

No. of employees	No. of companies in category	CRAFT		EUREKA		OTHER	
		Yes (%) <sup>1</sup>	No (%) <sup>1</sup>	Yes (%) <sup>1</sup>	No (%) <sup>1</sup>	Yes (%) <sup>1</sup>	No (%) <sup>1</sup>
0-20	49	40.8	57.1	26.5	71.4	14.3	73.5
21-50	32	37.5	62.5	25.0	71.9	18.8	68.9
51-100	38	39.5	57.9	26.3	71.1	26.3	65.8
101-500	72	31.9	54.2	38.9	47.2	23.6	51.4
501-1000	8	25.0	50.0	62.5	25.0	25.0	25.0
>1000	9	22.2	66.7	55.6	33.3	11.1	44.4
<b>Overall</b>	<b>208</b>	<b>35.6</b>	<b>57.2</b>	<b>33.2</b>	<b>59.6</b>	<b>20.7</b>	<b>60.6</b>

<sup>1</sup>Yes + No = 100% except where some SMEs did not answer the question

**Table 25: Company type (by product) vs awareness of European programmes for SMEs**

Company type (by product)	No. of companies in category	CRAFT		EUREKA		OTHER	
		Yes (%) <sup>1</sup>	No (%) <sup>1</sup>	Yes (%) <sup>1</sup>	No (%) <sup>1</sup>	Yes (%) <sup>1</sup>	No (%) <sup>1</sup>
Bakery	40	20.0	72.5	15.0	77.5	7.5	80.0
PC foods <sup>2</sup>	28	42.9	50.0	57.1	39.3	25.0	42.9
Meat	23	39.1	47.8	26.1	60.9	21.7	60.9
Dairy	21	52.4	38.1	19.0	71.4	9.5	66.7
Fruit/veg	15	0.00	93.3	33.3	66.6	26.7	60.0
Ingredients	14	50.0	50.0	42.9	42.9	35.7	50.0
Fish	11	27.3	72.7	18.2	81.8	27.3	63.6
Soft drinks	8	25.0	62.5	25.0	62.5	62.5	37.5
Alcohol	6	50.0	50.0	50.0	50.0	16.7	66.7
Poultry	5	40.0	60.0	60.0	40.0	0.0	80.0
Other	37	45.9	45.9	43.2	48.6	29.6	54.1
<b>Overall</b>	<b>208</b>	<b>35.6</b>	<b>57.2</b>	<b>33.2</b>	<b>59.6</b>	<b>20.7</b>	<b>60.6</b>

<sup>1</sup>Yes + No = 100% except where some companies did not answer the question; <sup>2</sup>Prepared consumer foods

**Table 26: Company size vs reasons<sup>1</sup> for taking part in EU R&D projects**

No. of employees	No. of companies in category	Cost sharing	New markets	International experience	Obtaining new technology	Other
0-20	49	26.5	24.5	30.6	26.5	2.0
21-50	32	34.3	18.8	15.6	28.1	9.4
51-100	38	26.5	32.0	28.9	52.6	2.6
101-500	72	23.6	26.4	30.6	51.4	2.8
501-1000	8	62.5	25.0	12.5	62.5	0.0
>1000	9	44.4	55.6	44.0	55.5	33.3
<b>Overall</b>	<b>208</b>	<b>30.3</b>	<b>26.9</b>	<b>27.9</b>	<b>42.8</b>	<b>4.8</b>

<sup>1</sup>Data in Table are percentages

**Table 27: Company type (by product) vs reasons<sup>1</sup> for taking part in EU R&D projects**

Company type (by product)	No. of companies in category	Cost sharing	New markets	International experience	Obtaining new technology	Other
Bakery	40	40.0	35.0	25.0	45.0	7.5
PC foods <sup>2</sup>	28	39.2	39.3	21.4	57.1	7.1
Meat	23	26.1	13.0	21.7	43.4	0.0
Dairy	21	23.8	14.3	28.6	23.8	0.0
Fruit/veg/potato	15	40.0	33.3	20.0	53.3	6.7
Ingredients	14	35.7	21.4	35.7	64.3	0.0
Fish	11	9.1	36.4	45.5	54.5	9.1
Soft drinks	8	25.0	25.0	25.0	37.5	0.0
Alcohol	6	16.7	16.7	16.7	33.3	16.7
Poultry	5	20.0	20.0	20.0	40.0	0.0
Other	37	24.3	24.3	37.8	27.0	5.4
<b>Overall</b>	<b>208</b>	<b>30.3</b>	<b>26.9</b>	<b>27.9</b>	<b>42.8</b>	<b>4.8</b>

<sup>1</sup>Data in Table are percentages

<sup>2</sup>Prepared consumer foods

**Table 28: Company size vs reasons<sup>1</sup> for NOT taking part in EU R&D projects**

No. of employees	No. of companies in category	Language difficulties	Lack of management capability	Financial	Form filling	Other
0-20	49	36.7	46.9	44.9	32.7	14.3
21-50	32	18.8	34.4	43.8	15.6	28.1
51-100	38	15.8	34.2	42.1	18.4	18.4
101-500	72	18.1	20.8	23.6	26.4	22.2
501-1000	8	0.0	12.5	12.5	12.5	25.0
>1000	9	11.1	22.2	22.2	22.2	44.4
<b>Overall</b>	<b>208</b>	<b>18.3</b>	<b>31.3</b>	<b>34.6</b>	<b>24.0</b>	<b>21.6</b>

<sup>1</sup>Data in Table are percentage

**Table 29: Company type (by product) vs reasons<sup>1</sup> for NOT taking part in EU R&D projects**

Company type (by product)	No. of companies in category	Language Difficulties	Lack of management capability	Financial	Form filling	Other
Bakery	40	30.0	32.5	40.0	10.0	30.0
PC foods <sup>2</sup>	28	25.0	32.1	25.0	28.6	10.7
Meat	23	30.4	33.3	30.4	26.1	17.4
Dairy	21	28.6	52.4	66.7	42.9	14.3
Fruit/veg	15	20.0	46.7	46.7	33.3	20.0
Ingredients	14	0.0	21.4	21.4	14.3	35.7
Fish	11	9.1	18.2	36.4	27.2	27.3
Soft drinks	8	12.5	37.5	25.0	25.0	0.0
Alcohol	6	0.0	33.3	33.3	16.7	16.7
Poultry	5	20.0	40.0	40.0	40.0	40.0
Other	37	10.8	16.2	21.6	21.6	24.3
<b>Overall</b>	<b>208</b>	<b>18.3</b>	<b>31.3</b>	<b>34.6</b>	<b>24.0</b>	<b>21.6</b>

<sup>1</sup>Data in Table are percentage

<sup>2</sup>Prepared consumer foods

**Table 30: Company size vs factors<sup>1</sup> for aiding participation in European joint research**

No. of employees	No. of companies in category	Assistance in identifying R&D task	Assistance with writing proposal	Participating in an international network	Having a visiting technologist in-factory	Other
0-20	49	57.1	38.8	32.7	32.6	4.1
21-50	32	59.4	40.6	40.6	31.3	6.3
51-100	38	47.4	44.7	34.2	28.9	13.2
101-500	72	38.9	36.1	50.0	26.4	5.6
501-1000	8	25.0	37.5	50.0	12.5	0.0
>1000	9	44.4	44.4	44.4	22.2	55.6
<b>Overall</b>	<b>208</b>	<b>47.6</b>	<b>39.4</b>	<b>41.3</b>	<b>28.4</b>	<b>8.7</b>

<sup>1</sup>Data in Table are percentages

**Table 31: Company type (by product) vs factors<sup>1</sup> aiding participation in European joint research**

Company type (by product)	No. of companies in category	Assistance in identifying R&D task	Assistance with writing proposal	Participating in an international network	Having a visiting technologist in-factory	Other
Bakery	40	52.5	25.0	40.0	22.5	10.0
PC foods <sup>2</sup>	28	46.4	35.7	50.0	35.7	17.9
Meat	23	56.5	60.9	30.4	21.7	4.3
Dairy	21	57.1	66.7	33.3	52.4	4.8
Fruit/veg/potato	15	66.7	33.3	40.0	26.7	13.3
Ingredients	14	14.3	35.7	50.0	21.4	7.1
Fish	11	45.5	27.3	36.7	45.5	9.1
Soft drinks	8	50.0	37.5	37.5	0.0	0.0
Alcohol	6	50.0	33.3	50.0	50.0	16.7
Poultry	5	40.0	80.0	60.0	60.0	0.0
Other	37	37.8	32.4	43.2	16.2	5.4
<b>Overall</b>	<b>208</b>	<b>47.6</b>	<b>39.4</b>	<b>41.3</b>	<b>28.4</b>	<b>8.7</b>

<sup>1</sup>Data in Table are percentages

<sup>2</sup>Prepared consumer foods

**FLAIR-FLOW EUROPE**



FLAIR-FLOW III is a co-operative project of the EU FAIR and INNOVATION programmes. It comprises a network (in 18 European countries) of circa 300 key people who disseminate food R&D results to the European food industry and to other end-users.

## SURVEY NO. 5

Development of food residue databases at European and national level: Yes/No?

- Would SMEs submit samples of their products for testing?
- Would SMEs allow the results to be included in a database?
- Important aspects of food safety in-company
- Important aspects of food safety for customers

## **Procedure**

A questionnaire (see annexe 4, page 58A) was circulated to 300 food companies in 17 countries which related to **(i)** developing food residue databases at European and national level, **(ii)** submission of product samples by companies for residue testing, and the inclusion of results in the databases, **(iii)** prioritising aspects of food safety which are important in-company, and **(iv)** prioritising aspects of food safety which are important for customers. There were 251 responses (84%).

## **Results**

The results have been collated in summary form in Tables 32 to 36 and are related to size (i.e. number of employees) and main product type of the companies.

### **Company size and type**

Ninety percent of the responding companies could be classed as SMEs (<500 employees) (Table 32) while bakeries predominated (22%) in the classification by company product type (Table 33). It should be noted that the above percentages change slightly from survey to survey [see Tables 2 and 3 (Survey 2); Tables 14 and 15 (Survey 3); Tables 20 and 21 (Survey 4)] due to the fact that not all the same companies completed the questionnaire in each survey.

### **Should food residue databases be developed?**

Seventy eight and 65% of companies responded 'yes' to the development of food residue databases at European and national levels respectively (Table 32). The biggest positive response was from the large companies (>1000 employees) and

the smallest from companies with  $\leq 50$  employees in relation to a database at European level. The response was more uniform across company sizes for the database at national level. Breakdown of the data by company type indicated that the largest 'yes' response for a database at European level came from soft drinks (100% yes), alcohol (89%) and ingredients (85%) companies. The highest responses for a database at national level came from alcohol (89% yes), ingredients (77%) and fish companies (77%) (Table 33). The lowest levels of positive response were from poultry and dairy companies (Table 33).

### **Submission of products for residue testing**

Sixty five and 56% of the companies said they would submit product samples for residue testing and allow the results to be included in food residue databases at European and national levels respectively (Table 34). The highest 'yes' response rate came from the larger companies and the lowest from companies with  $\leq 20$  employees. It would be useful to conduct actual product tests to see if the response with products matched the 'verbal' response. Data breakdown by company type indicated that the biggest 'yes' response was from soft drinks (88%), prepared consumer foods (82%) and fruit/veg/potato (73%) companies in relation to a European database. The highest positive responses for sample testing at national level came from ingredients (69% of companies,) alcohol (67%) and meat companies (65%) (Table 35). The lowest level of positive response was from poultry and dairy companies in relation to samples for a European database, and dairy (35%) and soft drinks (50%) companies in relation to samples for a national database (Table 35).

### **Prioritising aspects of food safety**

The companies were asked to prioritise five (in the case of in-company), and four (in the case of customers) areas of food safety in order to importance. HACCP and quality control systems were first and second in the case of the in-company areas (Table 36), followed by hygiene training, information and analytical support. Differences between priority rankings were smaller in the case of the 'customer' areas (Table 36) with 'product information' and the 'use of quality systems' by companies receiving the highest level of response.

### **Conclusions from survey No. 5**

1. Information was obtained from 251 food companies on **(i)** the development of food residue databases at European and national level, **(ii)** the submission of samples by food companies for residue testing, and inclusion of results in the databases, and **(iii)** prioritising aspects of food safety which are important in-company and for customers.
2. The level of response in favour of the development of food residue databases at European (78% of companies) and national (65%) level was good, bearing in mind that this could be a sensitive issue for many companies.
3. The response in favour of submitting food products for residue testing and including the results in the databases was also good. However, it would be useful to see (in the future) if the verbal response was matched by the submission of actual samples.

4. The level of positive response for developing food residue databases and for testing food samples tended to be higher for the large companies than for the smaller ones.
5. Companies involved in soft drinks, alcoholic drinks, prepared consumer foods, ingredients, and fish gave the highest level of response in favour of the development of food residue databases. The lowest levels of positive response were from poultry and dairy companies. A somewhat similar pattern was obtained in the responses to the submission of samples and the inclusion of results, except that fruit and vegetable companies were also advocates. A low response was obtained from soft drinks companies.
6. HACCP and quality control systems received the highest priority of five food safety areas of importance in-company. Product information received the highest rating of four areas considered of importance to customers.

## FLAIR-FLOW EUROPE



FLAIR-FLOW III is a co-operative project of the EU FAIR and INNOVATION programmes. It comprises a network (in 18 European countries) of circa 300 key people who disseminate food R&D results to the European food industry and to other end-users.

### Annex 4

#### Questionnaire (March - June 2000) to food SMEs in the FLAIR FLOW EUROPE platform.

Dear Colleagues,

Your help in completing this questionnaire for your company would be greatly appreciated. Your response will help to focus and streamline the provision of technical information for food SMEs Europe-wide. Thank you in advance for participating.

- Number of employees in your company/production unit:
- Your main product area:
- Food safety is of paramount importance for both the processor and consumer. In view of this, **should a food residue database be developed at:**

	YES	NO
European level?		
National level?		

- Would your company submit samples for residue testing, and allow the results to be **included** (anonymously) in a database at:

	YES	NO
European level?		
National level?		

- Which aspect of food safety is the most important in your company:

Analytical support	
Information	
Hygiene training	
HACCP systems	
Quality control systems	

Rank from:  
1 = most important, to,

- What (in your opinion) is the most important aspect of food safety for your **customers**:

Product certification	
Product traceability	
Product information	
Quality systems	

Rank from:  
1 = most important, to,

Table 32: Should a food residue database be developed at European and national level? [response (%) by company size]

No. of employees	No. of companies in category	% of companies in category	European level		National level	
			Yes (%) <sup>1</sup>	No (%) <sup>1</sup>	Yes (%) <sup>1</sup>	No (%) <sup>1</sup>
0-20	49	19.5	71.4	16.3	59.2	8.2
21-50	45	17.5	68.9	15.6	71.1	8.9
51-100	39	15.5	71.8	7.7	71.8	7.7
101-500	94	37.5	86.2	8.5	62.8	14.9
501-1000	14	5.6	71.4	21.4	64.3	21.4
>1000	10	4.0	100.0	0.0	70.0	10.0
<b>Overall</b>	<b>251</b>	<b>100.0</b>	<b>77.7</b>	<b>11.6</b>	<b>65.3</b>	<b>11.6</b>

<sup>1</sup>Yes + No = 100% except where some companies did not answer the question



**Table 33: Should a food residue database be developed at European and national level? [response (%) by company type]**

Company type (by product)	No. of companies in category	% of Companies in category	European level		National level	
			Yes (%) <sup>1</sup>	No (%) <sup>1</sup>	Yes (%) <sup>1</sup>	No (%) <sup>1</sup>
Bakery	54	21.5	72.2	25.3	70.4	11.1
Dairy	34	13.6	64.7	14.7	47.1	8.8
PC foods <sup>2</sup>	27	10.8	81.5	7.4	66.7	11.1
Meat	23	9.2	69.6	13.0	60.8	17.4
Fruit/veg/potato	22	8.8	77.3	9.1	68.2	18.2
Ingredients	13	5.2	84.6	15.4	76.9	0.0
Fish	13	5.2	69.2	15.4	76.9	15.4
Alcohol	9	3.6	88.9	0.0	88.9	0.0
Soft drinks	8	3.2	100.0	0.0	62.5	12.5
Poultry	5	2.0	60.0	0.0	60.0	0.0
Other	43	17.1	93.0	2.3	62.3	14.0
<b>Overall</b>	<b>251</b>	<b>100</b>	<b>77.7</b>	<b>11.6</b>	<b>65.3</b>	<b>11.6</b>

<sup>1</sup>Yes + No = 100% except where some companies did not answer the question

<sup>2</sup>Prepared consumer foods

**Table 34: Would your company submit samples for residue testing, and allow the results to be included (anonymously) in a database at European and national level?**

No. of employees	No. of companies in category	European level		National level	
		Yes (%) <sup>1</sup>	No (%) <sup>1</sup>	Yes (%) <sup>1</sup>	No (%) <sup>1</sup>
0-20	49	42.9	18.4	38.8	18.4
21-50	45	55.6	28.9	57.8	20.0
51-100	39	51.3	15.4	53.8	12.8
101-500	94	84.0	6.4	63.8	9.6
501-1000	14	64.3	28.6	64.3	21.4
>1000	10	90.0	0.0	60.0	10.0
<b>Overall</b>	<b>251</b>	<b>64.9</b>	<b>15.1</b>	<b>56.2</b>	<b>14.3</b>

<sup>1</sup>Yes + No = 100% except where some companies did not answer the question

**Table 35: Would your company submit samples for residue testing, and allow the results to be included (anonymously) in a database at European and national level? [response (%) by company type]**

Company type (by product)	No. of companies in category	European level		National level	
		Yes (%) <sup>1</sup>	No (%) <sup>1</sup>	Yes (%) <sup>1</sup>	No (%) <sup>1</sup>
Bakery	54	57.4	25.9	63.0	14.8
Dairy	34	55.9	11.8	35.3	11.8
PC foods <sup>2</sup>	27	81.5	7.4	59.3	14.8
Meat	23	69.6	13.0	65.2	13.0
Fruit/veg/potato	22	72.7	4.5	63.6	13.6
Ingredients	13	69.2	15.4	69.2	0.0
Fish	13	69.2	15.4	61.5	23.1
Alcohol	9	66.7	11.1	66.7	11.1
Soft drinks	8	87.5	12.5	50.0	12.5
Poultry	5	40.0	20.0	60.0	0.0
Other	43	60.5	16.3	46.5	20.9
<b>Overall</b>	<b>251</b>	<b>64.9</b>	<b>15.1</b>	<b>56.2</b>	<b>14.3</b>

<sup>1</sup>Yes + No = 100% except where some companies did not answer the question

<sup>2</sup>Prepared consumer foods

**Table 36: What aspects of food safety are the most important (i) in your company, and (ii) for your customers**

	% of companies <sup>1</sup>
<b>(i) In-company</b>	
HACCP systems	33.1
Quality control systems	29.2
Hygiene training	17.9
Information	10.9
Analytical support	8.9
<b>(ii) For customers</b>	
Product information	31.6
Quality systems	26.3
Product certification	21.8
Product traceability	20.3

<sup>1</sup>Companies were asked to rank the five (in the case of in-company) or four (in the case of customers) areas from 1<sup>st</sup> (most important) to 5<sup>th</sup>/4<sup>th</sup> (least important). The data in the Table are the percentage of companies giving a 1 (or first) ranking to each of the areas.

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