



R&D REPORT

NO. 85

**Barriers to the production
and consumption of
reduced fat bakery products:
final report**

1999

Campden BRI

Campden BRI

Chipping Campden
Gloucestershire
GL55 6LD, UK

Tel: +44 (0)1386 842000

Fax: +44 (0)1386 842100

www.campden.co.uk

R&D Report No. 85

Barriers to the production and consumption of reduced fat bakery products: final report

JA McEwan and TM Sharp

1999

EXECUTIVE SUMMARY

This one-year MAFF-funded project aimed to investigate the technical, economic and consumer barriers to the production and consumption of reduced fat bakery products, and to suggest how these may be overcome. This aim fitted into the Government's objective to reduce fat intake in the diet, which includes the contribution from biscuits, cakes and pastries.

The project was split into three research stages: technical and economic barriers; consumer barriers; and finally pulling the information together to explore how these barriers may be overcome.

Thirty in-depth interviews involving large, medium and small companies were undertaken. These covered 8 ingredient suppliers, 12 producers, 4 retailers and 2 experts. Interviews were structured to follow a discussion guide covering the following topics: company product range, nutrition policy, problems and challenges, current knowledge, consumer reaction and the future.

Overall there was a very good awareness of the Government's nutrition policy and regulations for claims, though there were mixed views on the labelling/claim regulations. In terms of technical barriers, it was agreed that: the manufacture of reduced fat bakery products is more difficult; the eating quality and shelf-life are generally poorer; insufficient ingredients are available, specifically for fat replacement and reduction; technical knowledge with respect to fat reduction is limited, particularly regarding processing functionality of ingredients; the 25% reduction required to make a claim is a technical challenge for many bakery products, and was perceived to be too stringent; and the requirements necessary to meet 'low fat' criteria can cause problems. On the economic side, it was felt that: there was no incentive for incremental reductions in product fat content; if no claim can be made, manufacturers are unlikely to reduce fat content; manufacturing (and possibly ingredient) costs for reduced fat bakery products are higher, and consumers do not want to pay more; there is no strategic approach to increasing

commercial availability of reduced fat bakery products; currently, reduced-fat bakery products are 5% of the total market for biscuits, cakes and pastries; and finally the Government could help by funding research in reduced fat bakery products.

Ten consumer group discussions were undertaken to explore consumer perception of and attitudes towards reduced fat bakery products. From these results a questionnaire was developed to quantify some of the attitudes and behaviour arising from the consumer groups. A total of 206 questionnaires were returned, a poorer response than anticipated, and for this reason the results were used with caution in their own right.

It was clear that consumers were aware that bakery products contain fat, and that this sometimes caused concern. However, the perception of bakery products, particularly cakes and pastries, as indulgence/treat items meant that many consumers did not see a real benefit to moving to reduced fat versions. In addition, another barrier was the perception that reduced fat bakery products were of poorer quality and higher price, though in the groups some consumers were pleasantly surprised at the quality of the products they tasted. This indicates that previous bad experiences have presented a barrier to purchase. It was also clear that a significant fat reduction was necessary to make a reduced fat bakery product worth buying, but this still should be of high quality and not incur a price penalty. Finally, better communication strategies were required to promote the benefits of reduced fat bakery products to consumers.

The final stage, the Workshop and pulling the information together, raised a number of issues and suggestions to overcome some of the barriers raised by the research. The issue of reduced fat bakery products being replacement of standard products could be a barrier, and it was suggested that such products should form a category in their own right. The issue of incremental fat reduction was made, and it was suggested that a short-term solution could be to reduce the fat content of all bakery products by 5%, whilst technical challenges for larger reductions were being resolved. It was also clear that communication with consumers needed to be improved.

CONTENTS

1. INTRODUCTION	1
1.1 Background	1
1.2 Reduced Fat Bakery Products	2
1.3 Selection of Product Categories	7
1.4 Project Objectives	8
2. TECHNICAL AND ECONOMIC BARRIERS	9
2.1 Objective	9
2.2 Data Collection Method	9
2.3 Confidentiality	10
2.4 Summary of Key Findings	10
3. CONSUMER BARRIERS	13
3.1 Objectives	13
3.2 Qualitative Research	13
3.3 Quantitative Survey	15
3.4 Summary of Key Findings	17
3.5 Implications for Future Research	20
4. THE FUTURE	22
4.1 Objective	22
4.2 The Workshop	22
4.3 The Way Forward	24
REFERENCES	26

1. INTRODUCTION

1.1 Background

The substitution of high fat foods by reduced fat alternatives can result in a significant reduction in the amount of energy that consumers derive from fat. While in some product sectors (e.g., spreads and milk) reduced fat alternatives are both widespread and acceptable to the consumer, other sectors such as bakery are behind in producing successful reduced fat alternatives. Cereal and cereal products contributes approximately 15.6% of dietary fat, of which bakery products contributes at least two thirds.

In the bakery sector, technical and economic issues may be barriers to providing quality reduced-fat products, whilst consumer barriers could lie in the perception of traditional products as indulgences, therefore reduced fat is contradictory to expectations. In other words, product labelling and concept may not match consumer expectations of this product category. In this respect, both sensory and psychological factors come into play. In addition, perceived legislative issues may be potentially constraining the reduction of fat, as in order to make a fat reduced claim, it is recommended that a 25% reduction in fat is made (FAC, 1991). The strategy for a step-wise reduction in fat may be more attractive from the technical and eating quality point of view and this issue needs to be explored.

This project investigated the barriers to reduced-fat bakery products, both from the industrial point of view through a series of interviews with technical contacts and from the consumer's point of view through group discussions. Barriers related to the consumer are quantified, and information from all parties will be combined to provide detailed documentation as a starting point to propose strategies for overcoming the barriers identified.

It is understood that reduced fat bakery products are not wide spread in the market place, and the results of this programme will help to determine whether the reason is technological, economic, sensory, negative expectations, or whether there is some other inhibiting factor or combination of factors.

1.2 Reduced Fat Bakery Products

1.2.1 Background Information on Reduced-Fat Bakery Products

According to the Food Pocket Book (1998), the sales of cakes and pastries in the United Kingdom increased by 18.2% from 1993 to 1996, whilst the sales of buns, scones and teacakes increased by 26.3% over the same period. The sales of non-chocolate biscuits have decreased by 0.7%, but this decrease is partly compensated for by an increase in the sales of chocolate covered biscuits (up 2.0%).

In the Keynote Report (1992) of biscuits and cakes, the long-term trends (1950-1991) show an increase in consumption of biscuits up until 1970 and then a slight decline in consumption (5.76 ounces per person per week in 1970 to 5.18 in 1991). For cakes there is a noticeable decrease in the consumption over time (6.69 ounces per person per week in 1950, 5.68 in 1970 and only 4.14 in 1991). Despite the long term trend from 1950 to 1991, the short-term consumption and expenditure (1985 to 1995) would seem to suggest an increase in consumption and expenditure of cakes and pastries, with a slight decrease in consumption of biscuits but an increase in expenditure (Keynote Report, 1992).

More cakes, pastries and biscuits are consumed in the North than the South of England and overall people in England consume more cakes and pastries than those in Wales and Scotland. However, more biscuits are consumed in Wales and Scotland than in England. Looking at income groups and amount spent on cakes and biscuits, it would appear that, of those adults living alone, more people in the lowest income bracket purchased cakes and biscuits than those in the highest income bracket. This pattern is reversed, however, when there are 2 adults and 1 to 3 children in the household (MAFF, 1996). The 1997 Food Survey (MAFF, 1998) reveals that average consumption of cakes and pastries has increased from 75 grams per person per week in 1987 to 93 grams per person per week in 1997, with a figure of 87 grams per person per week in 1996. This suggests that recent years have seen more consumption of these products, and therefore they have made a greater contribution to fat intake. In 1987, 151 grams of biscuits per person per week were consumed, compared with 150g in 1996; however, a drop of 12 grams was noted in 1997.

Although there has been a move by biscuit manufacturers to produce reduced-fat products it is recognised that consumers are not prepared to give up taste for health because biscuits are viewed as an indulgence. In 1996, the McVities "Go Ahead!" range of reduced-fat bakery products was launched and was quickly followed by own-label products. In 1996, sweet and semi-sweet biscuits accounted for 45% of reduced fat biscuit sales, up 10.1% from 1995.

Chocolate biscuits accounted for 18% of reduced fat biscuit sales, up 30.8% from the 1995 figures (McVities leads this sector with a 34% share in 1996 of the reduced-fat sweet biscuit market with their Light Digestives and Homewheat Light), then come cookies and oat biscuits, jam/custard filled biscuits and others (Taylor Nelson, 1997).

The cakes market has not been so successful in the introduction of reduced-fat and reduced-calorie alternatives. In 1995, reduced-fat and reduced-calorie cakes made up less than 1% of total wrapped cake sales, despite there being a general increase in the cake market of 10% between 1993 and 1995. This is possibly due to the lack of technology in being able to create a reduced-fat cake product with good sensory properties. Also, consumers see cakes as an indulgence and so the concept of a reduced-fat cake may be unrealistic (Taylor Nelson, 1997). Taking reduced-fat and reduced-calorie products generally, the reduced-fat/reduced-calorie product tried by most consumers was fat-spreads; 57% of the consumers questioned had tried this sort of product. To put reduced-fat/reduced-calorie biscuits and cakes into context, 22% of consumers asked had tried some form of reduced-fat biscuit, but only 9% of consumers interviewed had tried reduced-fat cakes.

McVities "Go Ahead!" products were the UK's first range of reduced-fat biscuits, cakes, savoury snack biscuits and frozen desserts. "Go Ahead!" achieved sales of £10 million in just 10 weeks and 25% of the population now buy these products. Consumer research reveals that reducing fat in the diet is the UK's No 1 dietary concern (Taylor Nelson, 1997). "Go Ahead!" offers up to 97% fat free across the range. McVitie's predicted that the "Go Ahead!" brand would be worth in excess of £40 million in 1997 (Taylor Nelson, 1997).

Table 1.1 shows results from the Product Intelligence data base at CCFRA for new reduced fat cakes and biscuits. Since 1996 new reduced fat biscuits have been the most popular development in the area of bakery products, but there has been less development for cakes.

Of the 7 reduced-fat cakes released in 1996, 3 were from Functional Nutrition Limited (coconut cake, lemon cake and sultana cake, all 98% fat free), 2 were from McVitie's (sticky syrup and fruit cake bars and sticky chocolate and delicious chocolate syrup, 97% and 95% fat-free respectively), and 1 from both Bakers Delight (rich Genoa cake, 96% fat-free) and California Cake & Cookie (hand baked carrot cake, 98% fat-free).

Table 1.1: Number of new products in the cakes and biscuit sector picked up by Product Intelligence at CCFRA: 1992-1997.

Year	Reduced Fat Cakes	Reduced Fat Biscuits	Total Reduced	Total Cakes	Total Biscuits
1992	n/a	1	1	n/a	229
1993	4	1	5	212	180
1994	6	15	21	307	202
1995	10	3	13	298	184
1996	7	18	25	222	201
1997	3	14	17	287	209
1998	8	14	22	423	281

Of the 3 reduced-fat cakes released during 1997, one was a reduced-fat Madeira cake from Tesco (A Moist Madeira Cake with 33% less fat than the standard Tesco All Butter Madeira Cake), one was from McVitie's (moist caramel cake with a smooth, rich caramel filling - 94% fat free), and one was from Bakers Delight (sultana, apple and cranberry cake - a healthy recipe suitable for reduced salt and very reduced fat diets).

Of those 18 reduced-fat biscuits released in 1996, 5 were from McVitie's (Apple Fruit-Ins 95% fat-free, Golden crunch 90% fat-free, Apricot Fruit-Ins 95% fat-free, milk chocolate Chocolinis 85% fat-free, and plain chocolate Chocolinis 85% fat-free), 4 were from Sainsbury's (honey bars, coconut bars, both 97 calories per bar, rich tea biscuits with 25%

less-fat, digestives with 25% less-fat), 3 were from Asda (rich tea, digestives and custard creams, all 25% less-fat), 2 were from Holly Mill Bakery (chocolate chip cookies and stem ginger cookies, both 83% fat-free), and 1 each were from Jacob's (fig rolls, 95% fat-free), Waitrose (digestive, 25% less fat), Boots (praline wafer bar, 96 calories), and Burton's biscuits (custard cream, 25% reduced-fat).

Of those 14 reduced-fat biscuits released in 1997, 5 were from McVitie's (Crispy Fruit Slices - Orange and Sultana -90% fat free, Ginger Crisp Biscuits - 90% fat free, Caramel Crisp Bars - 85% fat free, 5 Fruit & Nut Crisp Bars - 85% fat free, and Crispy Fruit Slices - Apple and Sultana - 90% fat free), 2 were from Burton's (Trim - Lower Fat Milk Chocolate Digestive, and Trim - Reduced-fat Crunchy Oatflake Biscuit), 2 were from Marks and Spencer (Reduced-fat Digestives, and Reduced-fat Rich Tea), 2 were from the Jacob's Bakery (Raisin Toast - 95% fat free and Continental Mini Baguettes - 84% fat free), and 1 each from from Sainsbury's (Shortcake Biscuit - 25% reduced-fat), Asda (Cream Crackers), and Merba BV (Strawberry Filled Sponge Biscuits - 96% fat free).

Sales and Consumption

The following table shows the consumption and expenditure for a range of bakery products from the 1997 National Food Survey (MAFF, 1998); figures in brackets are for 1987.

	Consumption (g/person/week)	Expenditure (p/person/week)
Bread	510 (557)	35.2 (33.9)
Cakes and pastries	93 (77)	30.9 (19.2)
Buns, scones and tea cakes	43 (31)	9.2 (4.9)
Biscuits	138 (151)	37.9 (26.8)

Source: National Food Survey, 1997

The Food and Drink report from Mintel (March, 1997) predicted that the sales of low-fat/low-calorie foods should reach £1,064 million (at 1996 prices) by the year 2001, representing an increase of 27% on 1996. However, this was dependent on manufacturers

being able to produce products that are enjoyable to eat, and that can be marketed as healthy eating. In addition, such products should not incur cost to the consumer.

Bakery products cover a wide range of foods, from bread through to cakes, pastries and biscuits. Fat content varies significantly throughout this range, from below 2% in breads to greater than 40% in some pastries. While there is little scope for reductions at the lower end of the scale, there would appear to be obvious opportunities at the upper end.

1.2.2 Role of Fat in Baked Goods

Before reducing or replacing fat in bakery products, it is important to understand the role fat has in the development of structure, texture and mouthfeel. By interfering with the formation of gluten in products such as pastries and biscuits, fat has a shortening effect and produces looser, softer and more crumbly textures. In puff pastries it contributes to this shortening effect, but also acts as a barrier between the layers, creating the classical flaky structure.

In cakes, fat plays a major role in stabilising the bubble structure. Without it the cake would collapse and give a dense hard texture.

Bread contains very small amounts of fat, but it is essential to help control and stabilise the foam produced by aeration of the dough.

Any fat replacers or extenders used must satisfy these technical requirements, and at the same time create the mouthfeel and flavour expected by the consumer. The biggest problem presented is with biscuits and pastries, where because of their low moisture content, fat has a more noticeable effect on the eating quality.

The total fat content of food brought into the house fell by 1.8g in 1995 (from 1995) to 78.5g per person per day (550 g per week), and is part of a steady decline (17.2g) over the last 10 years, from 95.5g in 1985 (National Food Survey: MAFF, 1996). Conversely, over the same 10 year period, the fat content supplied by cereal and cereal products has actually

gone up by 1.7g to 12.3g per day (86.1g per week). As a percentage of fat consumption, this equates to an increase from 11.1% to 15.6%. These figures indicate that technical issues need to be addressed to ensure that bakery products do not lead to an increase in dietary fat intake. Details on technical aspects can be found in Sharp (1999).

1.3 Selection of Product Categories

Before undertaking the qualitative research with consumers, it was first necessary to select the product categories to be investigated. Bakery covers a large range of products from breakfast cereals through to cakes and pastries. Clearly, products such as bread contribute relatively little to the nation's fat intake, whilst cakes and pastries have a significantly greater impact.

By using the report by Gregory *et al.* (1990), it was possible to estimate the daily fat intake for males and females from biscuits, cakes and pastries. This is shown below.

		Fat (g/day)	% of Daily Dietary Fat	Estimated Contribution by Product to Total Energy (%)
Males	Biscuits	3.2	3	1.2
	Buns/Cakes Pastries	6.1	6	2.2
Females	Biscuits	2.9	4	1.6
	Buns/Cakes Pastries	5.0	7	2.7

In summary, the fat from these two categories together contribute on average 3.4% (males) and 4.3% (females) of total energy consumed. In other words, if it were possible to reduce the fat content of these products overall by 50%, without any compensatory energy or fat increase elsewhere in the diet, a substantial contribution (2% points: 37.6 to 35.6% for males; 39.2 to 37.3% for females) to achieving the COMA report's target reduction in average fat consumption could be achieved. It was therefore decided to concentrate on biscuits, cakes and pastries in this research.

1.4 Project Objectives

The objectives for the overall project were broken down into three main components.

1. To identify the obstacles to the development of reduced-fat alternatives for bakery products.
2. To identify the barriers to consumer acceptability of reduced-fat bakery products and the extent to which this response is influenced by demographic and other factors, and by the individual's perceptions of the potential health benefits.
3. To assess how the barriers indicated in these two areas might be overcome.

2. TECHNICAL AND ECONOMIC BARRIERS

2.1 Objective

To identify the technical, economic and legislative barriers to the development of reduced fat bakery products.

2.2 Data Collection Method

In-depth interviews were used to identify and explore the key issues facing industry with respect to reduced fat bakery products. This method was used to preserve confidentiality and to enable issues to be probed in more detail than would have been possible through a questionnaire approach.

Small, medium and large companies were identified from contacts at CCFRA, and included ingredient suppliers, manufacturers and retailers. In addition, two internationally recognised experts in the bakery/fat reduction field were interviewed. Table 2.1 summarises the type of companies contacted. The contacts were working in technical, product development, sales applications and nutrition functions within their companies.

Table 2.1: List of company contact by type.

	No. of Companies Participating			Total	Number of Contacts
	Large	Medium	Small		
Ingredient Suppliers	6	2	-	8	9
Producers	4	5	3	12	15
Retailers	4	-	-	4	8
Experts	-	-	-	2	2
TOTAL	14	7	3	26	34

A discussion guide was developed to cover the main topics of interest in the area of reduced and low fat bakery products. The key topic areas were: the sort of products made by the company; how the current range was changing; whether nutrition was taken into account in low fat new product development; how difficult the development of low fat products was; how industry perceived the consumer reaction to low fat products; and what was thought to be the long term future for reduced fat bakery products.

2.3 Confidentiality

As some areas of product design and development are commercially sensitive, it was agreed with all respondents that any information given or discussed would not be attributable to individuals or their companies. Where specific information has been given, it is because it already exists in the public domain.

2.4 Summary of Key Findings

There was a high interest in reduced fat bakery product, and this was reflected in the fact that all contacts agreed to participate.

The Government health and nutrition policy was well known to the industry. However, the industry saw that it was the Government's job to educate consumers in nutrition and health targets.

The 25% reduction in fat needed to make a claim was considered to be a technical challenge for many bakery products, and therefore the claims were too stringent. Similarly, the requirements necessary to meet 'low fat' criteria could cause problems. A reduction of less than 25% would ensure that those negative effects on product quality were minimised. In addition, the cost of reduced fat bakery products is generally higher.

Government could help on the technical side by funding research and allowing new ingredients to be used.

There was no perceived incentive for incremental reductions in product fat content. In other words, if no claim for fat reduction could be made, then there must be an economic incentive for the producer. If this is not apparent, then it is unlikely that product fat contents will be reduced.

The manufacture of reduced fat bakery products is more difficult because of altered handling and processing properties. Reduced fat doughs are firmer, tougher and stickier, and can cause machine and handling problems. For example, greater abrasion leads to more rapid replacement of moulds. Greater gluten development leads to more shrinkage and the need to add more recipe water, which has to be removed during baking.

The eating quality and shelf-life of reduced fat bakery products are generally poorer than standard products, particularly with respect to flavour, texture and mouthfeel, and in some products, the perception of freshness is affected. Fat reduction leads to drier, firmer textures and a loss of lifting during baking of biscuits and cakes. Reduced fat pastry is drier, more brittle and dense.

There are insufficient ingredients available specifically for fat replacement and reduction. Few, if any, ingredients replace fat, and the best results are obtained by rebalancing and reformulating recipes rather than using new ingredients. Claims made for ingredient functionality are not always sustained.

At present, available technical knowledge in the area of fat reduction is limited, particularly regarding the processing functionality of ingredients. Know-how is fragmented and difficult to locate and, for commercial reasons, is not always shared. Ingredient suppliers are expected to know about functionality, but rarely have the resources to understand this area.

Manufacturing (and possibly ingredient) costs for reduced fat bakery products are higher, but consumers do not wish to pay more. Shorter production runs, higher wastage levels,

and more changeovers increase production costs. Replacement of fat with more expensive ingredients, and higher development costs increase the price of reduced fat bakery products.

Industry perceives that the consumer perception of reduced fat bakery product quality is lower than that of standard products. The expectation is that a reduced fat product should be, at least, equivalent in quality. However, some early reduced fat bakery products did not meet these standards, and the expectation of luxury products was even higher. Consumers will not compromise quality for nutrition.

Consumer purchase intentions and consumption patterns are not well understood. It was noted that consumption of reduced fat bakery products would not reduce fat intakes if more products were eaten. For example, reduced fat savoury crackers are drier and can encourage a greater use of high fat toppings such as spreads or cheese.

There is no strategic approach to increasing the availability of reduced fat bakery products. Development is mainly commercially driven (mostly by retailers), so there is no medium or long term research into new ingredients, functionality, quality issues, etc, which can be shared by industry.

A full report on the findings of the in-depth interviews can be found in Sharp (1999).

3. CONSUMER BARRIERS

3.1 Objectives

The objectives for the consumer research were to identify the barriers to consumer acceptability of reduced-fat bakery products and the extent to which this response is influenced by demographic and other factors, and by the individual's perceptions of the potential health benefits. This was achieved in two stages:

- By exploring and identifying barriers to consumer acceptance of reduced fat bakery products (e.g. eating quality, availability, image/concept, etc.)
- By quantifying barriers to establish the extent to which they exist in England, looking at differences between region, age and sex.

3.2 Qualitative Research

3.2.1 Method

The research consisted of ten group discussions, structured as follows.

		North	South
16 – 24 years	Own home, no children	ABC1	C2DE
23 – 35 years	Women with young children	C2DE	ABC1
28 – 40 years	Women with children aged 10+	ABC1	C2DE
40 – 60 years	Empty nesters	C2DE	ABC1
18 – 29 years	Men	BC1C2	-
30 – 45 years	Men	-	BC1C2

The key criteria for sampling were as follows:

- women/men who are solely or jointly responsible for food shopping for the household;
- all buy at least one packet of biscuits, crackers, cakes or pastries on a weekly basis;
- at least half the group members personally eat biscuits, cakes or pastries at least once a week;
- at least half the group members buy some low fat products;
- no-one recruited with specific health problems;
- non-low fat product users do not totally reject the concept.

The discussion guide covered the following topics:

- ◆ General discussion of snacking and indulgence type foods to establish current positioning of biscuits, cakes and pastries;
- ◆ Current usage of biscuits, cakes and pastries (including both discussion and self-completion questionnaires):
 - “Biscuits (etc.) are good for you because ...”
 - “Biscuits (etc.) are bad for you because ...”
- ◆ Mapping of existing bakery products and understanding of consumer terminology;
- ◆ Awareness and usage of low fat bakery products – influences, reactions, uses and attitudes, including probing on health issues;
- ◆ Tasting of low and standard fat alternatives;
- ◆ Investigation of packaging and low fat claims (with self-completion questionnaires):
 - “I would eat reduced-fat biscuits/cakes/pastries if ...”
 - “I would not eat reduced-fat biscuits/cakes/pastries if ...”
 - “The best claim for reduced-fat biscuits/cakes/pastries would be ...”
- ◆ Reactions to Government involvement and initiatives.

During the groups, respondents were shown a variety of high fat and reduced-fat products, some of which were sampled (blind). The trial of products was not intended to be a product test as such, but was used to stimulate further discussion about current perceptions of the taste and texture of low fat biscuits/cakes/pastries generally.

The products were selected from a list provided by the Baking and Cereal Processing Department at CCFRA and from store visits by Product Intelligence in the Department of Consumer and Sensory Sciences. Likewise, current low fat claims that were investigated in the research were taken from a selection of currently used product claims.

The groups were convened by Diana Clayton in St Albans and Cheam (South of England) and by Jan Chandler in Newcastle and Leeds (North of England), between 1st and 11th June 1998. Full details can be found in McEwan and Clayton (1999).

3.3 Quantitative Survey

3.3.1 The Questionnaire

A questionnaire was designed to quantify potential barriers to the consumption of reduced fat bakery products. As well as reflecting attitudes and perceptions elicited from the group discussions, background information was collected on respondents' age, gender, family and eating habits.

The questionnaire was to be completed by one person in a household, who was solely or jointly responsible for the main food shopping. The questionnaire comprised a number of sections, namely:

- ◆ About the products you eat and buy;
- ◆ Your attitudes towards health and dieting;
- ◆ Your usage of reduced fat products;
- ◆ Details about you.

After completing a number of drafts, the questionnaire was piloted on ten respondents from different ages and socio-economic groups. This was to establish if the questions were easy to answer as a self-completion exercise. After filling in the questionnaire, an interviewer discussed any problems raised by the respondent regarding the questionnaire. These were addressed and a final version was created.

3.3.2 The Sampling Method

The questionnaire was sent to 3000 households provided by CACI, a provider of addresses for market research work. CACI firstly stratifies all the postcodes in England by Government Standard Region (GSR). The postcodes are ordered by CACI's socio-economic classification (ACORN), and finally one Electoral Roll record is extracted at random from each of the 3000 selected postcodes.

The questionnaires, return envelopes and a letter were distributed by ACORN mailing Services on 7th September 1998, with a return date deadline of Friday 2nd October, 1998. An incentive of 25 x £10 WH Smith Vouchers was offered in a prize draw.

By sending out 3000 questionnaires, it was hoped to receive at least 600 returns (20% return rate). This was not considered unreasonable for this type of postal questionnaire.

3.3.3 Return Rate

A total of 236 questionnaires were returned, of which 27 were returned by respondents without completing, and 3 were received after 12th October, the cut-off date for data entry. Therefore a total of 206 questionnaires were decoded and transferred to the Minitab statistical package for data analysis.

This return rate of 7.2% was extremely disappointing, and perhaps partly reflects the lack of interest respondents have with respect to filling in a questionnaire on bakery products. Another aspect is undoubtedly the length of the questionnaire, which took 30-45 minutes to

complete. This is important for future studies in this area, where use of regional central location tests and one-on-one interviews may be more appropriate. Full details can be found in McEwan (1999).

3.4 Summary of Key Findings

3.4.1 Qualitative Research

Bakery products were eaten as a convenient snack and/or as an indulgence, though different bakery categories had definite roles. Biscuits were perceived as more of a convenient and enjoyable snack, which filled a gap and provided energy. Cakes and pastries were perceived as more of a treat or indulgence, and had a clear 'feel good' factor associated with them. Consumers found it hard to differentiate between cakes and pastries, although pastries tended to be more versatile, possibly more expensive and special.

Bakery products were not perceived as inherently unhealthy as consumers felt that the ingredients were not unhealthy in small amounts, and that bakery products only formed a small part of a healthy diet. It was also commented that these products provide energy (through fat and sugar), which is important for growing children, and that these ingredients contributed to the 'feel good' factor.

In general, concern about bakery products did not appear to be a priority for consumers, though some admitted to an element of guilt (particularly with cakes), mainly due to over indulgence. This was because bakery products were perceived to be fattening or contain a high level of fat, and this was a concern when dieting or weight watching. In addition, consumers considered that such products were high in sugar, calories and cholesterol (linked to heart disease). In particular, these concerns were most likely to affect women when dieting, people with specific health concerns (e.g. heart disease, kidney problems), and people looking for an all round healthier lifestyle. However, it was generally felt that a healthier lifestyle could be achieved by concentrating on the rest of the diet, and reserving bakery products for treats.

In general, consumers did not perceive a real need for reduced fat bakery products, except for people on diets or with poor health. This suggested that there could be alternative product positioning according to the segment of the population being targeted.

A major barrier to the purchase of reduced fat bakery products was the expected taste. This was a result of poor past experience with these products, and sometimes with other reduced fat products.

There was a confusion and lack of credibility about current claims which exacerbated the negative positioning of reduced fat bakery products, raised issues about the actual level of fat (and the amount in reduced fat products), and raised issues about other ingredients and substitutes for fat.

Consumers considered that current packaging confirmed the positioning of reduced fat bakery products as boring (bland), as being of poor quality and specifically for those on diets or with serious health problems. Product availability was also an issue, and it was felt that reduced fat bakery products should be located alongside full fat products, replicate individual and family favourites (offering greater variety), and be priced in line with full fat products.

3.4.2 Quantitative Survey

In considering the results of the survey, these should be viewed with some caution due to the poor response rate of 206 respondents, and the bias of responses towards the South-East of the country. The number of respondents meant that the objective to investigate demographic differences could not be fully met. However, reassuringly, the quantitative survey provided support for findings from the qualitative research.

Bakery products tended to be purchased in the supermarket, though bakeries still tended to be used for pastries and fresh cakes. Biscuits tended to be purchased as standard packs, whilst cakes were mainly purchased as individual cakes or cake bars followed by whole family size cakes, and pastries tended to be purchased individually.

Most respondents consumed sweet biscuits, with 72% consuming them at least once a week; this figure was 57% for savoury biscuits. Pastries were consumed by 30% of respondents on a weekly basis; this figure was 38% for fresh cakes, 11% for frozen cakes and 28% for pre-packed cakes.

Sweet biscuits tended to be purchased as a snack product or as an indulgence or treat item, whereas savoury biscuits were seen as a snack or part of a meal. Pastries and fresh cakes were most frequently purchased as an indulgence or treat. Price, quality and family favourite were the most quoted reasons influencing the choice of purchase of bakery products.

In general, respondents considered that biscuits, cakes and pastries were fattening and that they worried about the fat in these items. However, it was equally clear that bakery products played a specific role in the diet as filling a gap or as a treat. However, respondents could be segmented into groups according to their attitudes, and so not all respondents held the same views.

Over half the respondents claimed that they tried to live a fairly healthy lifestyle. Factors identified as contributing to a healthy lifestyle included reducing sugar, eating less red meat and controlling/reducing alcohol consumption, and then reducing cholesterol. When asked about measures contributing to watching diet and weight, the most common measure was reducing fat in the diet, followed by reducing sugar. Therefore there seems to be some confusion over living a healthy lifestyle and dieting or weight watching.

In terms of attitudes towards health, respondents felt that treats for the family need not be healthy, but nonetheless most felt that they tried to feed the family a balanced diet. In terms of reduced fat products tried, McVities Go Ahead range was the most cited across all categories, except pastries.

Respondents perceived that reduced fat bakery products were too expensive, they tasted worse than 'normal' fat products, and the reduction in fat was small. However, for those buying reduced fat bakery products, the reasons given were to reduce the fat in the diet or as an action towards general health for all the family.

Looking at attitudes towards reduced fat bakery products, respondents tended to agree that they would prefer to cut out cakes completely if on a diet and that reduced fat products were only important if you had special dietary needs.

Considering the purchase of reduced fat bakery products, respondents agreed that they would try new products if they were on special offer, and if they were of equal quality to 'normal' fat products.

In terms of reduced fat claims, 'fat free' was most likely to be purchased followed by 'virtually fat free', with the least attractive option being 'less fat than standard'. The most cited 'fat free' claims were 99% and 95%.

It would therefore seem that reduced fat bakery products could be important when dieting, but not necessarily as part of reducing fat in the diet. Price, quality and availability were also issues. In addition, it was clear that bakery products play an important role in the diet, and are seen as a treat or indulgence, particularly with respect to cakes and pastries. Added to this is the perception that the fat reduction available may not be enough to shift behaviour.

In conclusion, for reduced fat bakery products to be more widely consumed, industry must address the amount of fat reduction, and look at better communication strategies to convey benefits to the consumer. However, it should not be forgotten that biscuits, cakes and pastries are frequently indulgence items, and as such may be expected to contain fat.

3.5 Implications for Future Research

One option to attract mainstream consumers might be to position bakery products as achieving the 'feel good factor without the guilt'. This might be achieved by shifting the emphasis from negative diet and reduced fat positioning to a more positive health and high energy positioning (e.g. as with Pepsi-Max).

In terms of taste, it was felt that further flavour/texture developments were needed, and this should be communicated to consumers through advertising and in-store tastings. In fact some improvements have been made in recent years, but consumers still have old views.

Alternatively, the industry might consider reducing levels of fat without alerting consumers, thus achieving a general reduction in the fat consumed.

With respect to claims and labelling, barriers could be overcome by ensuring that the claims are consistent in format, and through appropriate education of consumers. As labelling is an issue in general, there is room for further research to structure and communicate information in a more accessible format.

4. THE FUTURE

4.1 Objective

To assess how the indicated barriers to the production and consumption of reduced fat bakery products might be overcome.

4.2 The Workshop

4.2.1 Background

A Workshop (Appendix 1) was organised at CCFRA towards the end of this one year research project with two main aims: firstly to communicate the key findings to the invited representatives from industry and those who took part in the survey; and secondly to discuss how barriers to the production and consumption of reduced fat bakery products may be overcome.

In addressing these barriers, it is important to remember the background to undertaking the research in the first place. In 1998 a consultation paper was presented to Parliament on 'Our Healthier Nation'. This sets out the Government's aim to improve the health of the whole population, and to reduce health inequalities. This included a strategy to reduce death from heart disease, strokes and related illnesses, and cancer. Related to these diseases is a high level of dietary fat, especially saturated fat. Thus, *the overall aim of Government is to shift the population's diet towards lower intakes of fatty foods and/or towards lower fat alternatives.*

This project specifically looked at the barriers to the production and consumption of reduced fat bakery products, and to identify potential ways in which these may be overcome.

4.2.2 Summary of the Workshop Syndicate Discussions

After presentations of the results from the consumer research and technical interviews, three syndicate groups were set up to look at the barriers to the production and consumption of reduced fat bakery products, and to suggest ways in which these may be overcome.

Consumer Related Issues

Recalling the Government's overall objective, many participants felt that, given the difficulty of large fat reduction in bakery products, small incremental decreases were the way forward. It was suggested that a 5% reduction across many bakery products could be technically feasible with fewer cost implications, and would be a first step. Given the present consumer barriers, this could be done without informing consumers, as it was unlikely to affect the product quality.

The eating quality barrier, introduced through previous bad experiences, could be overcome through suitable promotions in Supermarkets.

Another key barrier was the labelling of products, and consumer understanding of the terminology. Issues needing clarification were to do with terms such as *% reduced fat; reduced from what? It was also felt that % fat free was misleading, as it does not indicate the actual amount of fat in the product.

Another consumer barrier concerned the fact that many younger people are quite aware of health requirements, but do not always practice 'healthy eating', perhaps because this is considered to be something to worry about later. Therefore overcoming this barrier would be a major challenge.

Finally, on the consumer side, there could be concern regarding what fat was being replaced with, e.g. another set of E numbers.

Technical and Economic Issues

Again the issue of incremental reduction in fat was discussed. It was felt that technically a 5% reduction was easier than a 25% reduction. However, there was no perceived financial or promotional incentive to do this, as while the labelling guidelines were not law, there was a feeling that they had to be observed, ruling out any claims of reductions less than 25%. A relaxing of these may encourage growth of reduced fat bakery products.

The industry also recognised that low fat products were sometimes of lower quality, due to technical problems resulting from reducing fat in the product. There was still a lot of work required to meet the technical challenges to produce good quality reduced fat bakery products. This barrier could be overcome if the Government was to help fund research in this area. In fact, it was felt that such support should be provided as Government had a strong interest in shifting the population towards a healthier diet.

4.3 The Way Forward

In addressing the way forward, there are four key areas where barriers exist, and these must be tackled if reduced fat bakery products are to secure a successful place in the market place: consumer attitudes, product quality, economic and legislative issues.

Understanding consumer attitudes will be important to enable better communication strategies to be put in place to help shift the population towards a healthier diet comprising less fatty foods. This issue is wider than just bakery products, and learning from research in other food product areas should be considered.

The quality of products is still an issue, particularly where a significant reduction in fat is sought. While many developments have taken place, industry and Government needs to work together to meet the targets set by the Healthier Nation initiative. This means Government funding to help the industry, perhaps through the LINK programmes.

Economic issues tend to be tied in with the technical barriers, as reduced fat bakery products are more expensive to produce, yet cannot, at present, be sold at a higher price than standard products. It is possible that solving both the technical and consumer barriers would result in the economic barrier being addressed.

Finally, the legislation issue needs to be addressed, as the voluntary Guidelines are perceived to be mandatory in spirit. A relaxation of these Guidelines for the bakery area may help promote product growth in the short-term, whilst longer-term technical issues are researched.

In summary, the way ahead involves further consumer and technical based research, through industry and Government working together. For both parties, the ultimate goal of reducing fat in the diet will hopefully lead to a healthier population.

REFERENCES

DoH (1990). Report on Health and Social Subjects, 41; Dietary Reference Values for Food Energy and Nutrients for the United Kingdom, Report on Dietary Reference Values of the Committee on Medical Aspects of Food Policy. London: HMSO.

FAC (1991). Food Advisory Committee Report on its Review of Food Labelling and Advertising 1990. London: HMSO.

Food Pocket Book (1998). NTC Publications Ltd.

Gregory, J., Foster, K., Tyler, H. and Wiseman, M. (1990). The Dietary and Nutritional Survey of British Adults. London: HMSO.

Holland, B., Welch, A.A., Unwin, I.D., Buss, D.H., Paul, A.A. and Southgate, D.A.T. (1991). McCance and Widowson's The Composition of Foods - 5th Edition. MAFF / Royal Society of Chemistry.

Keynote Report (1992). A Market Sector Overview: Biscuits and Cakes. Key Note Publications Ltd.

MAFF (1996). National Food Survey - 1995.

MAFF (1998). National Food Survey - 1997.

McEwan, J.A. (1999). Barriers to the Consumption of Reduced Fat Bakery Products: A Consumer Survey. CCFRA R&D Report 80.

McEwan, J.A. and Clayton, D. (1999). Consumer Barriers to the Consumption of Reduced Fat Bakery Products: A Qualitative Approach. CCFRA R&D Report 78.

Mintel (1997). Low Fat and Low Calorie Foods. Market Intelligence Food and Drink, March 1997.

Sharp, T.M. (1999). Technical and Economic Barriers to the Production of Reduced Fat Bakery Products. CCFRA R&D Report. In preparation.

Taylor Nelson (1997). McVities: Biscuit Market Report. Taylor Nelson/AGB Family Food Panel.

APPENDIX 1: CONTENT OF THE WORKSHOP

Chairman's Introduction	Terry Sharp
Project Background and Aims	Jenny Woolfe
Consumer Barriers to Consumption: A Qualitative Approach	Diana Clayton
Consumer Barriers to Consumption: A Survey of Consumer Attitudes	Jean McEwan
Review of Available Fat Replacers	Paul Catterall
Technical, Economic and Legislative Barriers to Consumption: An Industrial Perspective	Terry Sharp
Some Issues on Labelling	Jenny Harris
Summary of Main Messages	Jean McEwan
Introduction to Syndicates: A Brief Introduction to LINK	Terry Sharp
Syndicate Group Discussions	All
Reports from Syndicates	Syndicate Chairs
The Way Ahead	Stanley Cauvain

