



## **A SUMMARY OF THE PILOT AND EVALUATION OF GLASGOW'S FRUIT IN SCHOOLS PROJECT**

A partnership project involving Glasgow City Council,  
Greater Glasgow NHS Board and Glasgow Healthy City Partnership

**JUNE 2003** 

A summary publication disseminating research and evaluation findings  
produced by the Health Promotion Department, Greater Glasgow NHS Board



## BACKGROUND + PILOTING FRUIT IN SCHOOLS

### THE SCOTS' POOR DIET WITH LOW CONSUMPTION OF FRUIT, VEGETABLES, BREAD AND CEREALS AND HIGH CONSUMPTION OF FAT, SUGAR AND SALT IS A MAJOR CONTRIBUTORY FACTOR FOR ILL HEALTH AND PREMATURE DEATH CAUSED BY CORONARY HEART DISEASE, CANCER AND STROKE.

#### BACKGROUND

Fruit Plus is an attempt to improve the diet of Glasgow's school children. The project aims to increase the uptake and enjoyment of fresh fruit among children in primary and nursery schools thereby encouraging the habit of fruit eating at an early age that will be maintained throughout life.

Free fruit is provided three times per week to children in all 381 primary schools, council managed nurseries and Special Educational Needs establishments within the Glasgow City area. Direct and Care Services manage the logistical challenge of distributing seven million pieces of fruit annually for consumption in the classroom.

This is supported by curriculum input devised by Education Services in liaison with Greater Glasgow NHS Board (GGNHSB) to tie in with Glasgow's existing curricular document 'Glasgow's Health'. Supporting activity packs and 'Fruit Plus' branded promotional material in the form of bookmarks, stickers and badges are used to reinforce uptake.

The initiative is part of the Food and Health Framework, an overall strategy developed by Glasgow Healthy City Partnership to promote healthy eating. It complements other initiatives such as breakfast clubs ('Glasgow's Big Breakfast'), healthier school meals and community food activities.

#### PILOTING FRUIT IN SCHOOLS

Before introducing the initiative on a citywide basis, a pilot study was conducted between December 2000 and May 2001. This involved 17 primary and 4 nursery schools and was designed to compare two approaches: 'Fruit Plus' and 'Food Dudes'. Food Dudes was adapted from a project already well developed and evaluated by the University of Bangor, Wales, in individual schools in England (see [www.fooddudes.co.uk](http://www.fooddudes.co.uk)). During the pilot phase fruit was supplied by Sainsbury's.

Each child was supplied with a free piece of fruit three times a week for consumption in the classroom. The Fruit Plus and Food Dudes Pilots differed in approach in terms of the promotional materials provided to participating schools. In particular, Fruit Plus relied more on curriculum activity while the Food Dudes Pilot comprised a video and a structured reward scheme for children.

#### Research Aims

- To investigate whether a Fruit in Schools initiative can contribute to producing a fruit eating population.
- To assess which Fruit in Schools model should be adopted.

#### Research Objectives

- To explore the logistics of delivering fruit to children on a large scale.
- To compare two models for a Fruit in Schools Initiative.
- To investigate the effect on children's attitudes to fruit.
- To investigate the effect on consumption of fruit by children.
- To explore the views of teachers, parents and support staff towards the project.
- To assess the added value, if any, of a promotional package.

#### Method

- Learning from Bangor University

The assistance of Bangor University Department of Psychology is acknowledged. Their studies could not be repeated in the Glasgow context, as resources were too limited to replicate the detailed studies they had undertaken in individual schools. However, findings from studies they have undertaken into the effect of the Food Dudes programme were taken into account and influenced decision making for the way forward.

- Monitoring of systems

The quality and quantity of fruit and the efficiency of the procurement and delivery systems was monitored by Direct and Care Services.

- Qualitative research

115 Depth interviews were conducted with key informants such as parents, teachers, headteachers, school support staff and Direct and Care Services staff to explore initial reaction and opinions regarding processes and effectiveness of the project.

- Quantitative research

Questionnaires were completed by children and parents before (pre) and after (post) the intervention to assess whether there had been any changes in reported consumption of fruit and attitudes towards fruit. Over 3000 children and their parents were involved in this aspect of the research.



# PILOTING FRUIT IN SCHOOLS

## Key Findings

- The impact of the project on children's knowledge about fruit and attitudes towards fruit consumption.**
  - + There was a positive change in attitudes, awareness and behaviour for both pilot projects.
  - + Overall enjoyment levels of fruit increased for both pilots (see figure 1).
  - + An increase was evident in the proportion of pupils eating 5 or more pieces of fruit per day, with a reduction amongst those eating no fruit at all (see figure 2).
  - + Awareness levels of the recommended daily amount of fruit and vegetable intake also increased, to around 50% at the post stages.
- The impact of the project in the home, in terms of knowledge, attitudes and consumption.**

Marginal increases were reported in fruit consumption among parents and pupils at the post stage of the quantitative research conducted with parents. Most commonly, parents ate between 1 and 3 pieces of fruit per day. Reported consumption at home was slightly higher amongst Food Dude participants.

Figure 1: How much do you like fruit?

|              | Fruit Plus  |             | Food Dudes  |             |
|--------------|-------------|-------------|-------------|-------------|
|              | PRE %       | POST %      | PRE %       | POST %      |
| Like         | 74          | 79          | 76          | 83          |
| Neutral      | 23          | 19          | 20          | 15          |
| Do not like  | 3           | 2           | 3           | 2           |
| Non response | 1           | -           | 1           | 1           |
| <b>Base</b>  | <b>1394</b> | <b>1345</b> | <b>1386</b> | <b>1442</b> |

Source: Market research UK Ltd. April 2001

### 3. Parents' views of the project.

The consensus among many (at least half) was that the project had influenced their family's eating habits, through an increase in both volume and range of fruit consumed. This was true for both Fruit Plus and Food Dudes. Parents reported that the project had encouraged their children to hold a more positive attitude towards fruit. Parents were very keen for the project to continue longer term.

### 4. Effectiveness of the project from a teacher/ head teacher perspective.

The time allocated by schools to the project was greatly influenced by the level of integration with the curriculum, and the level of adaptation required. More than half of Food Dude teachers considered the amount of time given thus far to be unacceptable, as this approach was not necessarily considered to be part of the curriculum. Fruit Plus, on the other hand was considered to require very little curriculum time to be specifically allocated to it. Teaching input slotted more readily into various areas of the curriculum already allocated time.

Figure 2: Pieces of fruit eaten each day

|                | Fruit Plus  |             | Food Dudes  |             |
|----------------|-------------|-------------|-------------|-------------|
|                | PRE %       | POST %      | PRE %       | POST %      |
| None           | 7           | 3           | 9           | 3           |
| One            | 23          | 15          | 19          | 11          |
| Two            | 23          | 16          | 20          | 19          |
| Three          | 18          | 20          | 22          | 19          |
| Four           | 9           | 13          | 8           | 14          |
| Five           | 10          | 16          | 10          | 17          |
| More than five | 9           | 16          | 11          | 16          |
| Non response   | 1           | -           | 2           | 1           |
| <b>Base</b>    | <b>1394</b> | <b>1345</b> | <b>1386</b> | <b>1442</b> |

Source: Market research UK Ltd. April 2001



## PILOTING FRUIT IN SCHOOLS + ROLLING OUT THE PROJECT

### BOTH PILOT PROJECTS WERE CONSIDERED ESSENTIAL TOOLS IN EDUCATING CHILDREN AND INCREASING AWARENESS OF THE BENEFITS OF HEALTHY EATING, WITH MANY TEACHERS ALSO CONSIDERING THE PROJECTS TO BE WORTHWHILE TO STAFF.

In general, enough curriculum materials had been made available to teachers and were considered in the main to be effective and useful. Teachers believed that the overall momentum of the project would decrease when Food Dude 'bribes' were removed. This, however, was not supported by evidence from Bangor University which suggests that rewards are only initially necessary to establish a positive attitude towards eating fruit and can be phased out without a detrimental effect.

Overall, both approaches were perceived to have advantages and disadvantages:

- + Food Dudes used a more promotional approach and the reward system it employed was recognised as effective.
- + Fruit Plus easily fitted into the curriculum and therefore was viewed positively, as minimal disruption to an already busy timetable was perceived to be essential.
- + The curriculum materials created for Fruit Plus were regarded as useful and useable.

#### 5. The logistics of 'Fruit In Schools' in the classroom, clarity of food safety guidelines, perceptions of consumption, storage and waste.

There was very little wastage of fruit. Although no real problems existed with the quality of fruit, some schools did experience problems with ripeness. Some teachers suggested that a wider variety of fruit would enhance interest. Schools seemed to be able to cope with storing three days' supply of fruit and food safety guidelines were taken into consideration by schools.

#### 6. Delivering fruit to participating schools.

- + Initial logistical problems were noted and the system was fine tuned to accommodate these.
- + Sourcing sufficient fruit and ensuring delivery and storage capability was a major challenge.
- + The sustainability of the project was considered vitally important. As such, the resultant system for sourcing and delivery needed to be robust.

Some of these results (see points 1 to 3) should be regarded with a degree of caution as findings from Bangor University's studies indicate that there is a strong novelty effect during the first months of such a promotional project which wears off over time. It was therefore considered vital to conduct a longer term study in order to assess effectiveness.

A full report of the pilot study is available on the GGNHSB website (please see back cover for details).

**NB.** Data collected at the pilot stage will be used as a baseline for the longer term evaluation of the outcome of this project.

### ROLLING OUT THE PROJECT

#### Applying Key Issues from the Findings of the Evaluation of the Pilot.

It was decided to develop Fruit Plus as the 'brand' for the Glasgow project and to take the best features from both Fruit Plus and Food Dudes to create the new programme.

The learning from Food Dudes indicated strongly that an incentive approach was vital. It was therefore decided to develop incentives for Fruit Plus. These necessarily were less elaborate than those offered by Food Dudes due to the scale and budget of Fruit Plus. Incentives offered included bookmarks, badges and certificates.

Logistically, the project seemed to be running smoothly but the implications for increasing the scale substantially needed to be monitored continually. Therefore the project was rolled out taking these aspects into consideration and an evaluation strategy was put in place.



## EVALUATION OF THE FIRST YEAR OF FRUIT PLUS

### TWO CASE STUDIES WERE CONDUCTED DURING 2001/2002 TO EVALUATE THE FIRST FULL YEAR OF THE FRUIT PLUS INITIATIVE WITHIN GLASGOW CITY.

#### EVALUATION OF THE FIRST YEAR OF FRUIT PLUS

##### Research Aims

- ⊕ To assess the effectiveness of Fruit Plus in encouraging pupils to become fruit and vegetable eaters.
- ⊕ To explore possibilities for development of Fruit Plus.

##### Research Objectives

- ⊕ To assess the impact of Fruit Plus on consumption of fruit and vegetables by children within the school, in the classroom, at breaks, at lunchtime and at home.
- ⊕ To explore in depth the factors which impact on fruit and vegetable consumption by children involved in the programme:
  - information about fruit and vegetables
  - availability of fruit and vegetables
  - competition from the tuck shop
  - promotion of fruit and vegetables at lunchtime
  - attitude towards fruit and vegetables and ways in which the programme impacts on attitudes
  - reward schemes
  - other programmes within schools (e.g. drama production - 'Inspector Pickles', Breakfast Clubs)
  - other initiatives within the community (e.g. food co-ops, food and health projects etc).
- ⊕ To assess the implications for schools:
  - perceived effect on the tuck shop and implications for school funds
  - logistics - storage, health and safety, etc
  - implications for staff - use, suitability and quantity of teaching materials, timing of input, etc
  - perceived sustainability of the programme.

#### Method

A qualitative approach was adopted using two contrasting schools in terms of size and location as case studies.

- ⊕ To allow for comparison over time, depth interviews were conducted with 44 school staff, including teachers, head teachers, catering and ancillary staff at 6-8 weeks and 5-6 months after the initial launch. This approach facilitated exploration of views and opinions of Fruit Plus as they developed over time.
- ⊕ Mini-focus groups were considered to be the most appropriate method to investigate the views of pupils given the age of respondents. In addition, due to different levels of maturity, pupils were split into two age categories, P1-P3 and P4-P7.
- ⊕ The views of parents were canvassed at PTA meetings at both schools.
- ⊕ Researchers also observed children during class- time, breaktime and lunch time, over two days at each school in three phases: prior to the launch, six to eight weeks after the launch and five to six months after the launch in order to ascertain any changes or variations in consumption over time.

#### Findings

1. Impact of Fruit Plus on consumption of fruit and vegetables within the school and at home.
  - a) Consumption at school
    - ⊕ Teachers and head teachers believed that over time, pupils appeared to be more willing to try a greater variety of fruit and vegetables. The most commonly preferred fruits were grapes, apples and bananas. In terms of the key fruits which pupils disliked, these included cherry tomatoes, pineapple, and pears.
    - ⊕ Teachers noticed that more pupils were bringing fruit from home and in some cases wanted to 'show' the teacher what they had brought.



## EVALUATION OF THE FIRST YEAR OF FRUIT PLUS

- ⊕ A number of pupils reported that they ate both fruit and crisps or sweets at break times on Fruit Plus days. The fruit provided at school was in addition to other refreshments at breaktime rather than an alternative. Few pupils claimed they brought fruit from home for consumption at breaktime within the school.
  - ⊕ However, objective observation and handcounts demonstrated that fewer than 20% of the children brought fruit to school with them and that this level reduced to 11% over the period of the study. It is worth noting that during this time every child was receiving a free piece of fruit and so one explanation could be that parents considered that there was no need to supplement this with more fruit.
  - ⊕ Researchers observed no reduction in consumption of crisps, sweets and fizzy drinks even on days when free fruit was supplied. Fruit had not at this stage become an alternative choice.
  - ⊕ The Catering Managers perceived there was an increased appetite for fruit at lunchtimes. However, the fruit and vegetable order for both schools remained the same.
- b) Consumption at home**
- ⊕ Many parents had not seen a major change in consumption at home. These parents considered their children to be quite inflexible about the fruit and vegetables they liked or disliked. However, a number of parents at each school considered they had seen a change in their children's overall consumption of fruit and vegetables since the start of Fruit Plus. Parents had observed their children being more willing to try both fruit and vegetables at home, whereas before, these had simply been refused. Changes had been experienced with children of a variety of ages at both schools. Parents reported they were purchasing more fruit than previously.
  - ⊕ Most pupils reported that they ate a variety of fruit outwith school, such as; strawberries, kiwi, raspberries, melon, mango and plums. Interestingly, most of the fruit mentioned was not types of fruit provided via Fruit Plus.

## 2. Factors which impact on fruit consumption

### a) Attitudes

- ⊕ There was a general consensus that over the months of Fruit Plus, pupils' awareness of the important benefits of fruit had increased, and the awareness of the '5 pieces of fruit and vegetables a day' rule was evident.
- ⊕ Pupils claimed they would miss fruit if it were not available.
- ⊕ Catering Managers considered that many pupils were set in their ways with regard to fruit and vegetables. Both Catering Managers expressed difficulty trying to encourage pupils to try fruit and vegetables.

### b) Variety

- ⊕ Teachers at both schools mentioned at the 6 - 8 week stage that they were concerned the lack of variety of fruit may impact on consumption. However this was not an issue which was raised by pupils themselves (who are, after all, happy to eat the same variety of crisps or sweets everyday).
- ⊕ A wide variety of fruit was offered at lunchtime, such as bananas, satsumas, fruit salad, apples, grapes and pears. A wide variety of vegetables were also offered with the school meals, such as broccoli, turnip, sweetcorn and peas. The most popular vegetables were carrots and baked beans. At this stage there was limited promotion of fruit and vegetables at lunchtime.

### c) Ripeness

- ⊕ Pupils reported disliking fruit that was either under or over ripe. Ripeness is therefore an issue which needs to be addressed by those considering sourcing, delivery and storage if pupils are to have a positive experience of the fruit provided.

### d) Parental Involvement

- ⊕ Both head teachers and teachers considered that parents had a vital role to play to encourage fruit consumption amongst pupils outwith school hours. Parental involvement was yet to be developed within the project.



## EVALUATION OF THE FIRST YEAR OF FRUIT PLUS

### e) Promotion and Incentives

- ⊕ Teachers suggested that it would be appropriate to phase out incentives at some point. This was endorsed by the Bangor University studies which showed that incentives are only needed initially to promote a constructive context for the development of a positive attitude to fruit. However, it was suggested that increasing promotion at festival times such as Halloween, religious festivals etc, would help to maintain momentum.
- ⊕ New imagery was considered necessary for the older pupils.
- ⊕ The end of year reward for a class was perceived to have little impact.
- ⊕ Teachers considered that the project could capitalise on the potential of lunchtime catering.

### f) Integration with other initiatives

- ⊕ There seemed to be limited teacher awareness of other healthy eating initiatives e.g. drama projects, community food projects. This suggests there is much scope to link up initiatives in order to maximise overall impact.

### 3. Implications for the schools

#### a) Curriculum

- ⊕ There was a high level of satisfaction with teaching resources which were being fully used in these case study schools. The resources had been used by the teaching staff for use in spelling, science, maths and environmental studies.
- ⊕ Time issues were more apparent in initial stages. However, time allocated to Fruit Plus was considered to be well spent.
- ⊕ Teachers were keen to share good practice with other schools.

### b) Logistics

- ⊕ Spreading the load in a school between teachers, parent helpers, and auxiliary staff works well. Otherwise the project is highly reliant on goodwill.
- ⊕ Logistical problems were in the main sorted out after about 6 weeks.
- ⊕ Delivery of sufficient fruit for each school was considered crucial by the teaching staff. Children are extremely disappointed if there is insufficient fruit for all. This has implications for estimates of school absence, potential wastage etc.
- ⊕ There was a high awareness of health and safety issues associated with handling fruit within the schools.

### c) Tuck Shop

- ⊕ Schools reported a reduction in tuck shop income on Fruit Plus days which had a detrimental effect on school funds.
- ⊕ Neither school had considered selling fruit in the tuck shop.

**Overall the first year of Fruit Plus had been regarded positively by pupils, parents and schools. The in depth case study approach for evaluation yielded many ideas for potential improvement and development and enabled the steering group to make informed decisions about the way forward.**



## THE WAY FORWARD

### THE WAY FORWARD

#### Promotion of Fruit at lunchtime

A 'Pick and Mix' promotion of fruit is currently being rolled out across all Glasgow Primary schools. Pupils can select fruit and vegetables from a promotional display to eat with their lunch at no extra cost. The uptake through this initiative is being monitored.

#### Expansion of the scheme

Additional funding from the Scottish Executive has enabled the council to provide fruit 5 times per week. However, sourcing, delivering and storing fruit for an extra two days per week are complex challenges in a project of this scale. Whilst it has been suggested that dried fruit and fresh fruit juice could be offered as alternatives, the detrimental effect of these on dental health make these unsatisfactory options.

A potential solution is to provide fruit in the classroom for four days, supplemented by all children having the opportunity to visit the 'Pick and Mix' table in the school canteen on the fifth day whether or not they normally take school lunch. This makes logistics easier and at the same time has the added benefit of encouraging children to eat a variety of raw vegetables as well as a wider variety of fruit than can be supplied in the classroom situation.

#### The school as a workplace

The potential for Fruit Plus to contribute to the promotion of staff health is as yet unexplored.

#### Further research

The effectiveness of Fruit Plus on consumption of fruit in school and at home over the long term is to be measured by following the cohort of pupils involved in the pilot study over several years. Baseline data is already collected for these pupils.

Additionally there is scope for research around the question of what are the advantages/opportunities/added value/problems of running Fruit Plus alongside other initiatives e.g.

- + Inspector Pickles - drama project
- + Breakfast Clubs
- + Community Health Projects
- + Parental involvement
- + Promotion of fruit and vegetables at lunchtime

For further information on the Fruit Plus project please contact

**Sharon Carton 0141 353 9237**  
Project Coordinator  
Direct and Care Services

For further information about the research associated with the Fruit Plus project please contact

**Ruth Kendall 0141 201 4961**  
Senior Health Promotion Officer  
(Research and Evaluation)

**Heather Mackenzie 0141 201 4873**  
Health Promotion Officer  
(Research and Evaluation)

**Greater Glasgow NHS Board**  
Dalian House  
350 St. Vincent Street  
Glasgow G3 8YY

**GGNHSB website : [www.nhsgg.org.uk](http://www.nhsgg.org.uk)**

A 'pdf' version of this document is available to download at the above website.

Click on the 'NHS Board' icon, then go to 'Publications and Reports' to locate the 'Fruit in Schools' pdf document.



A partnership project involving Glasgow City Council, Greater Glasgow NHS Board and Glasgow Healthy City Partnership.

