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Policy Initiatives Concerning Diet, Health and Nutrition

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NOTE

This report presents the results of the survey on Policy Initiatives in Diet, Health and Nutrition sent to Ministries for Food and Agriculture of OECD countries. The report has also benefited from discussions with Dr. Franco Sassi of the Health Directorate and participants at the expert meetings for the Economics of Prevention project.

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POLICY INITIATIVES CONCERNING DIET, HEALTH AND NUTRITION

Executive summary

- The main findings of the paper are based on the OECD survey of policy initiatives in diet, health and nutrition and a review of the relevant literature. Overall survey responses indicate that most efforts focus on two main types of activities: first, increasing information on diet and health to consumers to enable them to make informed food choices and, second, promoting increased consumption of fruit and vegetables, particularly amongst children. The survey results provide information on policy experiences and programmes in OECD countries.
- One of the consequences of a change in lifestyles and dietary habits has been the growth in obesity and non communicable diseases (NCDs). From the relevant literature there is clear evidence that poor diet and nutrition increase the incidence of non-communicable chronic diseases (NCDs), particular cardiovascular diseases and probably some cancers. For example, fruit and vegetable consumption which can confer protective effects for certain NCDs is below recommended levels of 400g/per day and decreasing in many countries. Furthermore obesity, a precursor of many of these NCDs, is also associated with poor diets as well as a lack of physical exercise.
- Both direct health care costs and indirect costs of morbidity, mortality and informal care associated with NCDs are very high and rising in most OECD countries. These weigh on health care budgets and affect the economy overall through productivity losses.
- What the role for government could or should be in modifying food choices is a delicate policy issue. While arguments can be made for intervention due to rising costs to the public purse of the consequences of food choices, at the individual level there may be welfare losses if choices are restricted. Governments, therefore, mainly opt for promoting an environment conducive to healthy food choices through appropriate incentives and information provision.
- Both the literature and the OECD survey show an increase in government initiatives to assist consumers in making healthy food choices or promoting consumption of specific healthy foods, such as fruits and vegetables. These initiatives, often through collaborations among different government agencies, focus on the provision of information through labelling and publicity campaigns, nutritional education programmes for children and adults, promotion of fruits and vegetables, and partnerships with the food industry and producer groups. There is mounting evidence in a number of OECD countries that school based programmes are particularly effective, thus efforts are increasingly focussing on school age children.
- While ministries of agriculture in most OECD countries do not play a major role in diet and nutrition issues, a growing number are becoming more involved through increased collaboration with Public Health agencies. The food industry, from producer groups to retailers, is also becoming more involved in promoting healthy eating, such as in campaigns to increase fruit and vegetable consumption.

Part I. Introduction

Diet and health issues have risen in importance on the policy agendas of most OECD countries with the increase in the incidence of obesity and chronic diseases and their health care costs. Not only are the direct costs of these viewed with concern but also the indirect costs resulting from productivity losses to the economy tied to mortality, morbidity and informal care costs, particularly if present trends continue.¹ Most chronic diseases are avoidable, at least in part, through balanced diets and increased physical activity according to public health officials. This has motivated governments to move towards prevention strategies rather than simply coping with the undesirable outcomes. However, a prevention strategy is also costly to the government purse and interventions need to be evaluated in terms of their cost-effectiveness. Most OECD countries are now placing greater emphasis on cost-effective prevention strategies which focus on diet, physical activity and reductions in obesity and overweight (OECD, 2008).

While the overall policy framework for the prevention of non-communicable diseases (NCDs) remains with the Ministry of Health, other Ministries are often involved in the development and implementation of specific programmes, including Ministries of Food and Agriculture. The extent to which different Ministries take responsibility depends on the institutional arrangements in each country. In this context, the objective of this study is to document initiatives and collaborative efforts by the Ministries of Food and Agriculture in promoting healthy diets and improved nutrition to permit an exchange of policy experiences. This work also complements the major study under way in the OECD Health Division on costs and benefits of chronic disease prevention to be finalized in 2009.

This paper is organized as follows: Part II provides a brief overview of trends in food consumption behaviours and selected economic issues in diet and health promotion; Part III presents the results of the survey of policy initiatives of the Ministries of Food and Agriculture alone or in collaboration with other agencies in the area of diet, health and nutrition; Part IV concludes by summarizing the findings of the study.

Part II. Brief overview of trends in food consumption behaviour and selected economic issues in diet and health promotion

Food consumption trends

Rising incomes, changing composition of the labour force, technological change, urbanization and changing demographics have contributed to changing lifestyles including food habits in all OECD countries. Technological change has been particularly important in raising agricultural productivity, increasing food availability and decreasing real food prices as well as reducing energy expenditures at work and at home (Lakdawalla and Philipson, 2003; Cutler *et al.* 2003, Sassi and Hurst 2008).

With increased incomes the share spent on food has declined in most OECD countries and on average, food expenditures (both at and away from home) now represent only about 13% of total expenditures down from about 25% a generation ago. But total food expenditures have risen as diets have become more varied and include more high value products, as well as a larger share of prepared and processed foods (Regmi *et al.*, 2002). Productivity increases have made for cheap and abundant food supplies in almost all OECD

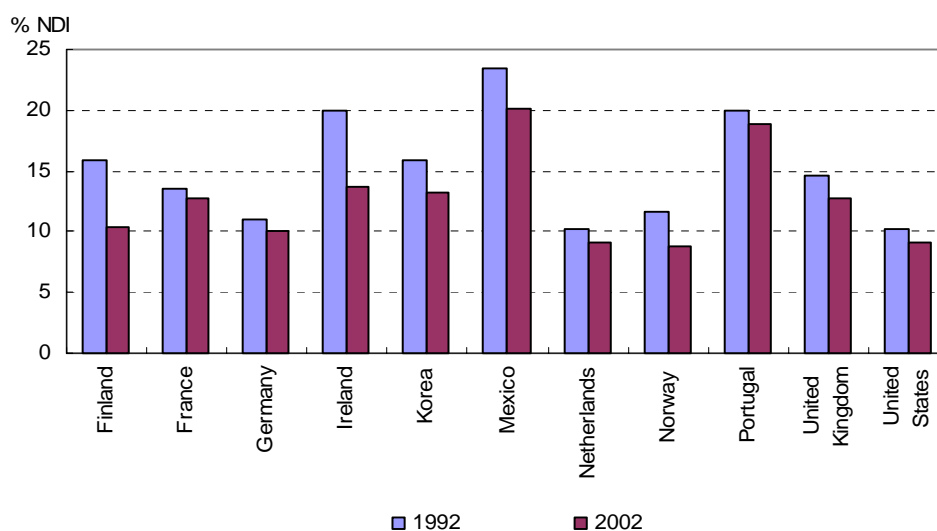
¹ According to the 'Foresight' project the projected costs attributable to overweight and obesity in the UK will reach GBP 10 bn per year by 2050 and the wider costs to society and business will reach GBP 49.9 bn (at today's prices) with over half of the adult population being obese (Mc Pherson, 2007; Mc Cormack, 2007). The 'Foresight' project is funded by The Foresight Programme and Horizon Scanning Centre based in the Government Office for Science within the Department for Innovation, Universities and Skills.

countries. Figure 1 indicates that food expenditure as a share of disposable income is still declining, but that differences remain due to income levels.

Relative prices of foods may also be important in determining food choices. Foods high in fat and sugar, that is energy dense foods, are often relatively less expensive than low energy dense foods such as fruits and vegetables, so consumers minimizing costs per energy unit may opt for the energy dense foods. According to Sturm, 2008, this may also be an important factor in rising obesity rates. He finds that the price index of fruit and vegetables in the United States rose substantially more than other food categories and even surpassed the overall consumer price index.² Research on actual food intakes and their price finds that relative prices may be affecting diet quality but not always as expected. For instance a rise in the fast food price index and the fruit and vegetable prices both improved dietary choices-increased fibre, lowered sodium and lower cholesterol and even contributed to a reduction in Body Mass Index (BMI) (Beydoun *et al.*, 2008).³

However, there is substantial debate on the issue, particularly as it affects lower income groups, which are those with the highest rates of obesity. For instance in France, Drenowski *et al.*, find as previous European studies that higher food costs are associated with healthy eating. Previous work also found that each additional 100 g of fruit and vegetables was associated with EUR .23 to .38 /day increase in food costs (Drenowski *et al.*, 2004).

Figure 1. Total food expenditure as a percentage of net national disposable income



Note: Total expenditure refers to expenditure on food and non-alcoholic beverages, both at and away from home.

Source: OECD ANA database.

² According to Sturm in 2002 the fruit and vegetable price index rose to 258, which is substantially more than other food categories and even more than the overall consumer price index (index 1982-84=100), Research from ERS-USDA however suggests that the prices of fruit and vegetables did not increase as much as indicated by these price indices because they fail to take into account quality changes incorporated in the goods and thus overestimate relative differences (ERS, 2007).

³ Fruits and vegetables were found to be relatively more expensive than refined foods high in sugar and fat in a study of food intakes.

With changing labour market demands, time and energy devoted to food preparation have become more expensive in terms of trade-offs with other activities and this may be more important than the budget constraint in shaping food choices. It has also been important in providing incentives for innovation in the food industry to capture this consumer need. Consumers have the option to either prepare a meal or simply heat up a prepared meal purchased at the supermarket, “deli”, or perhaps call up or email for home delivery. Both what we eat and how we get it have changed substantially over recent decades. These changes may have had consequences on diets in terms of energy and nutrient intakes as well as on health (Schmidhuber, 2006, Cutler *et al.*, 2003, Cutler and Glaeser, 2005, WHO, 2004).

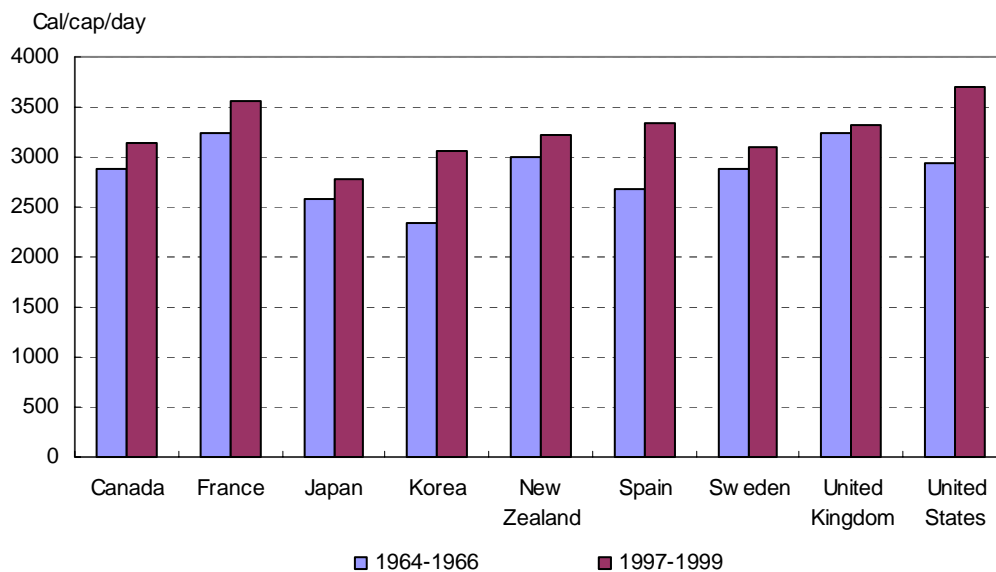
Another important trend is that of away-from-home meals, or the purchase of prepared or semi-prepared foods, as less ‘home time’ is spent in preparing meals. While this share is rising, the portion of food expenditure on away from home meals is often much less than that of food consumed outside the home. The growing proportion of out of home meals implies that consumers are likely to have less knowledge of the content of their actual food intake compared with at-home meal preparation. If consumers do not have knowledge of the nutritional content of food, it is possible that competition focuses on attributes that consumers can easily evaluate, such as price, amount and taste at least in repeat purchases (Sturm, 2008).⁴ Mancino and Kinsey (2008) find that consumption of meals away from home increase both the total calorie intake and the number of calories from fats, added sugars and alcohol.

The FAOSTAT Food Balance Sheets (FBS) indicate an increase in apparent consumption of calories, fat and proteins at the global and regional levels. Caloric intake has risen from about 2 900 in 1964/66 to nearly 3 300 in 1997/99 in industrial countries as shown in Figure 2. This figure includes waste and therefore makes a comparison with nutritionally recommended levels difficult⁵ (FAO, 2002). With this in mind, the data shows that fat intake has increased and is above the maximum 30% recommended energy share in North America and Western Europe, with saturated fats also above the recommended 10% mark (WHO, 2003). The recommended consumption of fruits and vegetables is 400 gm per day or more, yet most OECD countries do not meet this goal (Elinder *et al.*, 2003, Wells and Buzby, 2008). Refined carbohydrates have also gained ground in recent decades replacing whole grains and thus decreasing fibre intakes.

⁴ This fits well with Akerlof’s theory, that if quality cannot be assessed by a buyer competition will be on price and other observed characteristics (Sturm, 2008; Akerlof, 1970).

⁵ These data represent apparent consumption and are not to be confused with actual consumption which is derived from food consumption surveys. Food in the FAO Food Balance Sheets (FBS) represents available supplies minus feed, industrial use, and waste (up to the retail level). FBS food availabilities still include all post-retail forms of waste, notably household waste, pet food, spoilage, etc, and thus may overestimate consumption at the household level. USDA estimates losses of close to 25% in their FBS and compare their caloric availability to a 2 200 recommended level.

Figure 2. Available supply of total calories per capita



Source: FAO.

One of the consequences of the change in lifestyles and dietary habits has been the growth in obesity and nutrition related non-communicable diseases (NCDs), such as cardiovascular disease, diabetes II and certain cancers. Box 1 summarizes some recent evidence on the links between diet and chronic diseases. Cardiovascular diseases are the number one cause of mortality in the world, accounting for about 30% of deaths globally and can be largely avoided through healthy lifestyle choices.

Box 1. Diet and Health: What is the evidence base?

A large body of scientific literature has examined links between diet and chronic diseases.¹ The main agreed-upon findings are highlighted here for two main chronic diseases, cardiovascular and cancers. Obesity is considered a precursor to these and for which diet has direct impact.

Cohort studies evaluating adherence to overall dietary guidelines for the United States, the Healthy Eating Index, (HEI) find a reduction in CVD risk of about 15% (women) and 28% (men) when comparing the highest to the lowest quintiles. Measuring adherence to a HEI with specific food characteristics identified yielded more pronounced results: a 28% (women) and 39% (men) reduction in CVD risk again comparing highest to lowest quintiles. (McCullough *et al.*, 2000; McCullough, 2002a,b). Varied diets following recommended guidelines are those which should yield best health outcomes, or are least risky for chronic disease.

Fruits and vegetables to the rescue?

The health profile of fruits and vegetables has risen in recent decades and now are part of most dietary interventions. Most studies concur that fruit and vegetable consumption confers a risk reduction for the family of cardiovascular diseases, the number one cause of death and disability worldwide (Estaquio *et al.* 2008; Nowson, 2006; Hung *et al.*, 2004; Kearney *et al.*, 2005; Ness, *et al.*, 1997, 2005; Joshipura K, *et al.*, 1999, 2001, 2003, 2008; McCullough *et al.*, 2000a,b; WHO, 2002, 2004; Liu *et al.*, 2000; Dauchet *et al.*, 2006; Van Duyn and Pivonka, 2000).² Recent analyses for the European Union finds that the burden of CVD can be reduced by up to 25% and that of cancer between 2 and 10%, for consumption of 600gm/per day (Pomerleau *et al.*, 2006; Joffe and Robertson, 2001) In Japan, a large cohort prospective study found that a higher consumption of fruit but not vegetables was associated with a significantly lower risk of CVD, the risk of the highest quintile was about 15-20% lower than the lowest consumption quintile (Takachi *et al.*, 2008).

In practical terms, Bazzano *et al.* find that consuming 3 servings or more a day compared to 1 or less of fruit and vegetable is associated with a 27% reduction in stroke incidence, 42% lower stroke mortality and 24% lower ischemic heart disease mortality, while Joshipura *et al.*, find that for each 2 serving increase in intake of fruits or vegetables the risk of coronary heart disease decreased by 4%.

High consumption of fruits and vegetables may also be important in reducing risks of some cancers. While there is evidence for their protective effect against some cancers, there are also substantial differences in results obtained across studies with notable differences between cohort and control-response studies when looking across a range of cancers. According to Temple and Gladwin, in general there is a protective effect from the consumption of a wide variety of fruits and vegetables. Others do not however find such a protective association from cancers (Takachi *et al.*, 2008; Hung *et al.*, 2004).

Fruit and non-starchy vegetable consumption yield a probable protection for some cancers, such as that of the mouth, larynx, stomach, oesophagus, and pharynx according to the review of over a hundred studies by the expert Panel of World Cancer Research Fund (2007).^{3,4} These results are weaker than previously found. Among the explanations offered for divergent results are different dose-response criteria differences, the accounting for confounding factors and greater number of large cohort studies compared to small control response studies. Some have also suggested that cancers are slower to develop and there is a possibility that nutrient and protective content of fruits and vegetables differ from those 10-15 years ago (Temple and Gladwin, 2003; Potter, 2005).

Fruit and vegetable consumption, being low energy dense foods, have been shown to contribute to weight loss and thus would lower risk for disease morbidities associated with obesity, in particular some cancers and cardiovascular diseases.

1) Cancer evidence is taken from the World cancer Research Fund (2007) research findings and other prospective cohort studies. For heart and cardio-vascular diseases we rely on information from findings reviewed by national heart associations and public health institutes. Information for obesity studies are from international public health organizations (WHO) including International Association for the study of obesity (IASO).

2) CVD and CHD categories as used here also cover strokes, though studies are specific to which outcomes (CHD, CVD or stroke) are associated with F&V consumption.

3) Based on the cohort studies since the mid 1990s the expert panel judged that the evidence was not overall convincing, but rather probable. Since vegetables and fruits are low density foods which when consumed in variety are sources of many vitamins, minerals and other biotactive compounds necessary to good health.

4) Individual studies have found quite significant protective effects (V'at Veer WHO, 2002, 2004; Pomerleau *et al.*, 2003; Van Duyn (2000). In the US and Japan, prospective cohort studies found little evidence of reductions in risks or relative risks for cancers from fruit and vegetable consumption (Hung *et al.*, 2004; Takachi *et al.*, 2007).

How costly are non-communicable chronic diseases (NCDs) to society?

The direct and indirect costs associated with the rising incidence of chronic diseases have become a concern of health care budgets and treasuries in most OECD countries. Direct costs are health care costs, while indirect costs are productivity/income losses due to morbidity and mortality as well as informal care costs.⁶ Obtaining comparable estimates for the burden of disease as the sum of direct and indirect costs of illness has proven difficult, except for a few NCDs.

Comparable data for the EU member are available for cardiovascular diseases (including heart disease and stroke), the number one cause of death and disability in OECD countries. This information is shown for the EU and selected EU members in Table 1. For the EU, total direct costs are EUR 152 bn and indirect costs to the economy EUR 128bn, yielding a grand total of about EUR 280bn for 2006 (British Heart Foundation, 2008). These costs are quite sizeable and are likely to increase with aging of the population as well as the increase in the incidence of high risk factors, such as obesity. Cardiovascular diseases are also the number one cause of mortality in the United States, where both direct and indirect costs are immense. It is estimated that the total cost of CVD was approximately USD 351.8bn of which USD 209.3 bn were for direct health costs and USD 142.5 bn were indirect costs due to productivity losses (American Heart Association, 2003).

The costs of obesity are quite significant but also largely avoidable. For example, in England (2002) it is estimated that the total cost of obesity was approximately GBP 3.34 –GBP 3.72 billion, including both direct and indirect costs. If the overweight are included, this rises to GBP 6.6-GBP 7.4 billion. Of this total about GBP 991 million, that is 2.3-2.6% of total net National Health Service expenditure (2001/2002) was spent for obesity attributable to direct health care costs, such as CVD, diabetes, stroke and cancers. Lost earnings or lost potential of national output accounted for about GBP 2.35-GBP 2.60 billion (McCormick *et al.*, 2007).

Table 1. Costs of cardiovascular diseases¹: European Union and selected countries, 2006 (EUR bn)

	Direct Health Care ^a	Indirect Health Care ^b
Denmark	1.4	2.1
France	16.5	13.4
Germany	39.4	27.7
Hungary	.3	1.1
Netherlands	5.7	5.3
Poland	3.9	2.3
United Kingdom	27.4	26.2
European Union	152	128

¹Cardiovascular diseases here include heart disease and stroke costs.

^a Direct costs include health care costs.

^b Indirect costs include informal care, productivity losses due to morbidity and mortality.

Source: European Cardiovascular Disease Statistics, 2008. <http://www.heartstats.org/datapage.asp?id=7683>

⁶ A cohort based study on Medicare recipients in the United States found that higher fruit and vegetable intakes were associated with a lower mean annual and cumulative Medicare costs and a savings of more than USD 2000 per person comparing the highest to lowest category of intakes (Daviglus *et al.*, 2005).

The incidence of nutrition related NCDs, in particular the family of cardiovascular diseases, can be avoided through diet and physical activity (WHO, 2004).⁷ But motivating a change in lifestyles and in particular food habits can be extremely difficult. Research in anthropology, sociology, politics and psychology often describe food choices as a result of a complex set of influences including family, social networks, education, technology, social and economic determinants, as well as the market environment in which these choices are made (Cutler and Glaeser, 2005; Kjaenes, 1993, 2003; Burnett, 1989; Loewenstein, 1996; Levenstein, 1988).⁸ The challenge is twofold, to improve dietary choices to avoid NCDs and to do so in a cost-efficient and equitable manner.

Food Choice Frameworks

Individuals make food choices to maximize utility, so outcomes reflect preferences in a context of sovereign choice. In these cases, there is little role for public policy to attempt to change behaviours, as this would likely lower the individual's welfare.⁹ The typical assumptions for consumer demand hold including perfect information and stable preferences.

Even if an individual knows what the healthy choice is, he may decide to choose an unhealthy option, one with negative health consequence. Why would this be the case? Different choices with respect to health behaviours imply different discount rates or value of life. One would thus expect that 'unhealthy behaviours' would be correlated (Cutler and Glaeser, 2005). However, empirical data in the US from several data sources does not support this view. Cutler and Glaeser find empirical support for the hypothesis that certain 'situational' influences are likely to trigger specific lifestyle choices in those susceptible to such influences with an intensity of response that may be modulated by individual characteristics. This is found to be particularly apparent with changes in food production technology (at individual and family level) which has relaxed time constraints on food preparation but may have increased the caloric content of food consumed and may partly explain dietary changes and the rise in obesity rates.¹⁰ (Sassi and Horst, 2008).

The literature on economics and psychology also suggests that people tend to discount heavily the future, thus events such as future illness dependent on today's behaviour are discounted with respect to today's utility from consumption (Laibson, 1997; Murphy and Becker 1988).¹¹ This paradigm includes the

⁷ The protective effect of fruit and vegetable intake of a least 400gm/per day has been evidenced in many scientific studies, but actual consumption is far below this recommended level.

⁸ A reduced intake of saturated fats and trans-fat and maintaining a healthy BMI as well as no smoking and reductions in alcohol consumption would reduce risk of cardiovascular diseases and thus the burden of disease to government.

⁹ Unhealthy behaviours have been estimated to account for about 50% of deaths in US and other developed economies, in particular due to tobacco use, poor diet and lack of exercise and excessive alcohol consumption (McGinnis and Foege, 1993; Cutler and Glaeser, 2005).

¹⁰ Standard models of consumption involve rational individuals—people decide how much to consume on the basis of price and income, fully accounting for the future health consequences of their actions. People continue to over-eat despite evidence that they want to be thinner and try to lose weight (there is indeed a USD 30 to 50 billion annual diet industry in the US). Food brings immediate gratification while health costs of over-consumption occur only in the future. As a result, people with self control problems may find themselves over-consuming food when time costs of food preparation fall. It is often the case that they want to begin a diet tomorrow, because the long-term benefits justify the lost utility tomorrow but not today, because the immediate gratification from food is high. It is a common feature of behavioural change programmes, e.g. smoking and drinking cessation or weight loss, that they encourage keeping the offending items as far away as possible (Cutler *et al*, 2003).

¹¹ The utility function reflecting future discounting of consequences of today's actions/inactions is referred to as hyperbolic discounting as opposed to standard constant discounting. The evidence is usually in the cognitive psychology literature which contradicts the predictions of utility functions with stationary and fixed discount rates. This revives the time inconsistency issue as has been previously discussed by Strotz (1956). Laibson has popularized

addictive or habitual behaviours explanations of why people engage repeatedly in unhealthy behaviours, such as eating unhealthy foods or smoking even though they know the long and short term costs of doing so. The implicit assumption here is that if people do adopt such behaviours, they derive satisfaction from them. Changing habitual behaviours is difficult because individuals may suffer from tunnel vision, which impedes them from seeking or using information about the consequences of their behaviour¹² (Miao *et al.*, 2007; Sassi and Hurst, 2008, pp. 27-28). It is also difficult to change behaviours because those who adopted them initially derived a positive degree of satisfaction from them. Such behaviours can make market choices outcomes less than optimal from a health perspective.

Over the past decade or so numerous studies have attempted to better understand food consumption behaviours, particularly those which lead unhealthy outcomes. Box 2 provides a brief summary of behavioural economics approach to food consumption.

the hyperbolic discounting utility function in many areas from self-regulation, job search, addiction and investment in human capital.

¹² Tunnel vision is due to "reduced motivation to seek and use information that may lead to a better understanding of the consequences of the behaviour in question and a tendency to discount the value of new information that is received particularly when it highlights risks associated with the habitual behaviour. The second aspect is that people who engage in habitual behaviour act on the implicit assumption that if they found the behaviour desirable when they first adopted it, so it must also be desirable for them to continue to engage in the same behaviours" (Miao, 2007; Sassi and Hurst, 2008, 27-28).

Box 2. Behavioural economics and food choices

Behavioural economics and psychological studies provide numerous insights to food consumption decisions.¹ Research in these areas helps to understand why individuals may make choices that prevent them from reaching their goals or go against their own self interest. Often, food consumption decisions do not appear to conform to standard economic assumptions as factors other than prices, income and information are determinate in consumer food choices.

In their research psychologists and behavioural economists find that people most frequently use heuristics to make decisions and this leads to seemingly irrational choices or biases (Kahneman *et al.* 1982, Just *et al.*, 2007). Experimental research findings suggest that heuristics or rules of thumb are often used to simplify decision making and are important in predicting which foods an individual eats, how much and whether he will eat these again. This may be an efficient approach to decision making given time constraints. However, if decision making under time constraints is coupled with outcomes that are uncertain or occur in the future, errors of judgement can become large.

Research has also found that individuals may place more weight on 'default options', even in food choices. For instance, if French fries are the default option of a menu they opt for this rather than ask for the salad they had planned to eat. External cues may also influence food choices, so that presentation and packaging of as well as the characteristics of the environment, such as lighting, noise and distraction may affect what and how much food is consumed (Shiv and Fedorihin, 1999; Laibson, 2002, Just *et al.*, 2007).

Self-control problems often reflect dynamically inconsistent choices as individuals heavily discount future outcomes. Even if a specific future outcome is preferred but requires foregoing immediate satisfaction, individuals may opt for immediate satisfaction. Time inconsistent choices have been found not only with respect to food consumption, such as in deciding to go on a diet after today's big meal but also for rewards that accrue in the future, such as in retirement accounts. Penalties are used to deter early withdrawal of funds so that individuals are constrained in their choices (Thaler, 1981; Laibson *et al.*, 1998, Just *et al.*, 2007). If individuals suffer from time inconsistency they can improve their long run welfare through commitment mechanisms that will enforce time consistency and set limits on current consumption (Gul and Pessendorfer, 2004; Ariely and Wertenbroch, 2002).

Another major reason for seemingly irrational behaviours due to lack self control may well lie with effect of 'visceral factors' which include, hunger, thirst, pain among others that cause us to make decisions which will mitigate the visceral factor immediately (Loewenstein, 1996). In his work on decision making he finds that visceral influences have a disproportionate affect on behaviour and tend to crowd out all goals other than that of mitigating the visceral factors. Furthermore, one tends to underestimate the impact that these will have in the future or have had in the past or experienced by others (Loewenstein, p 272). While it might be possible to integrate these visceral factors into preferences these qualitative effects which make them distinct from preferences, in particular their often transitory nature.

If in food consumption decisions individuals lack self control either due to visceral influences or because they prefer immediate gratification, then allowing them to preselect or commit to more healthful choices would counteract the tendency to make less healthy food choices (Just *et al.*, 2007, p11). They can also commit to abstaining to specific unhealthy foods. A similar strategy could be implemented in situations where the temptation of choosing a tastier but unhealthy food option is presented with the healthier one. Research finds that in presence of unhealthy but tastier alternatives decreases the enjoyment from choosing the healthy option. Again research suggests that the ability to preselect menus reduces the chances of increase failure to regulate behaviour.

Mancino and Kinsey(2008) suggest that visceral factors may be important factors in continued rising rates of obesity in the US all the while there is an increased awareness and publicity of the benefits of a healthy diet and lifestyle. Their analysis indicates that factors such as hunger due to long intervals between meals, eating away from home, or time pressures—can drive individuals' food choices and induce increased caloric intake.

The findings which behavioural economics and psychology provide to understanding consumption behaviours should be able to provide guidance in the development of different food programs and incentives for healthy eating.

¹This brief summary is based on the work of report, "Could Behavioral Economics Help Improve Diet Quality for Nutrition Assistance Program Participants?" D. Just, L. Mancino, and B. Wansink.

Should governments attempt to modify individual food habits?

Public interventions promoting a change in lifestyles should have an economic justification as these will generally entail costs from the public purse. Governments often intervene to correct market failures when these may cause damage to the individual and society and if they can improve on the market outcomes. In the area of lifestyles, this can be a delicate issue because government interventions may interfere to a greater or lesser extent with individual choice, which may not be welfare improving for an individual.

The set of market failures often called upon to justify interventions are information failures, many of which are due to asymmetry between producers and consumers. In food choices, individuals may opt for the unhealthy choice because they simply do not know the content of the food in terms of calories/nutrients or its possible longer term risks to health. Children are also a special case where government intervention may be called for because of their inability to evaluate product content and its consequences. The information asymmetry issue arises when away from home or prepared meals are consumed and their entire content is not known.

Other market failures include negative externalities of unhealthy food habits where social costs that arise from unhealthy food habits are not internalized in private costs of food. These could possibly imply a role for government involvement providing information to remedy the failure or other incentives to reduce choices with negative externalities. Some consider that if increases in obesity rates and incidence of nutrition-related chronic diseases are seen as societal problems, then there is a case for government involvement in finding solutions to the problem. This does not absolve individual responsibility, but recognizes the need for concerted action to resolve a social problem (Kjaernes, 1993, 2003; Brownell, 2004).

The difficulty faced by governments is to find measures or approaches that limit unintended consequences on individual's choices at the same time providing an environment, which makes healthy choices with respect to diet and physical activity easy. There may be a role for government involvement providing information through education, labelling regulations and even information campaigns. But there are other possible incentives, such as financial. In Japan under the Japan Health 21(JH21), integration of healthy weight and/or physical activity is being tied to the cost of insurance premiums to avoid moral hazard and encourage avoidance of risky behaviours (Fourcadet, 2008). To the extent that risky individual behaviours weigh on the public there may be a role for attempting to dissuade through insurance premium costs (Battacharya and Sood, 2004).

Fiscal policies, such as taxes and subsidies, are commonly suggested incentives to altering behaviours. Taxing of certain foods, such as those which are energy dense with no nutritional content and subsidizing others such as fruit and vegetables, has been suggested. Thus far, however, no OECD governments have taxed specific foods to reduce their consumption. Arguments against taxation of 'unhealthy' foods include the relative ineffectiveness of tax measures, due to the low price elasticity of demand for food, and the impossibility of targeting products and consumers. The approach is rather to promote an environment where healthy food choices can be made.

What strategies for diet and health?

To promote healthy food choices, governments are trying to mobilise those sectors which directly or indirectly may influence food consumption choices, such as education, social affairs, agriculture in addition to the pivotal health sector. Ministries of Food and Agriculture have also recently become active in initiatives to assist consumers in making healthy food choices.

Health information on food is generally provided by educational and promotional campaigns undertaken by government agencies. But it is also distributed by the food industry and producer associations. For consumers this means having to judge the validity of the information being distributed or interpreting different health claims. Though there are large amounts of information readily available for foods, much of it may be ignored because it may simply be too costly for consumers to use in terms of their opportunity cost of time. For instance, research has shown that shoppers often do not read all information on the labels because purchases are made quickly (Golan *et al.*, 2007). And when reading labels the number of warnings may be too large for efficient processing by the hurried shopper. Thus, identifying the most important piece of nutritional information may be impossible. This could lead consumers to adopt simple choice mechanisms and not take into account relevant information (Golan *et al.*, 2007; Golan and Variyam, 2000). Prior nutritional knowledge was found to be an important factor in being able to use the label nutritional information concerning fats, vitamins and ingredients in making food choices (Drichoutis *et al.*, 2003) If prior knowledge characterises those who use labels generally, and if the less educated and often most disadvantaged are those who tend to make least 'healthy' food choices, then there could be benefit from more intense educational programs for these groups (Variyam and Cawley, 2006).¹³

Advertising can influence food choices; otherwise it would not be undertaken on the scale that it is by the food industry (Nestlé, 2002). But how important is the health information that is distributed by the industry itself? Research finds that government information may not be sufficient to affect behaviour. In comparing fat intake before and after bans were lifted on industry advertising of health consequences of fat intake, research found that there was acceleration in the decrease of fat intake (Ippolito and Mathios, 1995a). This means that when industry health claims and those of government agencies coincide, the industry advertising may actually assist in bringing effective changes in behaviours. However, when the information does not coincide, industry advertising could limit the efficacy of the government health message as a small study on Canadian butter consumption evidenced, where industry efforts were able to reduce the decrease in butter consumption sought through public information campaigns (Chang *et al.* 1991).

Economic research on the impacts of health information to influence changes in food consumption patterns found significant impacts on consumer choice once relative prices and income were taken in account (Capps and Schmitz, 1991; Gould and Lin, 1994, Neuhauser *et al.*, 2000). Information through labelling can be effective in modifying food choices if it is clear and easily comprehensible (Ippolito and Matthias, 1995; Variyam and Golan, 2000). This could imply that investments in communicating the messages of healthy eating are well spent and designing of labels can be important contributors to modifying food behaviours.

Is it possible to modify dietary choices? Substantial effort is being put forth on behavioural interventions focusing on dietary change both for adult populations as well as for children and adolescents. But what does the evidence show? While changes in dietary behaviours can be had from a variety of interventions, the central issue is to what extent these are long lasting.¹⁴ Due to lack of sufficient longitudinal experiments it has been difficult to identify the main drivers for modifying long run changes.

¹³ Using Nutritional Labeling and Regulation Act (NLEA) regulatory impact analysis as benchmarks, the authors estimate that the total monetary benefit of the decrease in body weight was USD 63 to USD 166 billion over a 20-year period, far in excess of the costs of the NLEA.

¹⁴ For instance, in the assessing the medium term effects of a reduction in fat intakes and increases in fruit and vegetable consumptions a review of interventions found on average significant increases in fruits and vegetables (6 servings per day) and a decrease of 7.3% in calories from fat, though these were more effective for populations identified as being

Many experiments have been conducted to modify food intake behaviour of children and adolescents and in particular to promote fruit and vegetable consumption. The development of healthy eating habits in children is viewed as an important avenue for reducing long term risks of obesity and nutrition related non communicable diseases. Eating habits developed in childhood are hypothesized to influence adult food consumption patterns as well as perhaps affecting future health outcomes (Maynard *et al.*, 2003; Mikkila *et al.*, 2005; Sidik and Ahmad, 2004; Zlotkin, 1996). To modify food intake behaviours, interventions may need to be tailored to the most significant determinants of fruit and vegetable intakes. Box 2 summarizes the findings on determinants.

Box 3. What are the potential determinants of fruit and vegetable intakes among children and adolescents?

In a review of over 60 papers analysing the determinants of fruit and vegetable intakes among children and adolescents 6-18 years in 21 countries, the main determinants were found to be age, gender, socio-economic status, preferences and likings, parental intake and home availability or accessibility¹ (Rasmussen *et al.*, 2006)

Gender differences were significant in 14 out of 17 European studies but not for 6 out of 18 US studies. Age was found to have a measurable impact, with consumption decreasing with age. Thus young children consumed more than their adolescent counterparts in Europe at least. Studies generally concur that low socio-economic status is associated with low fruit and vegetable consumption, and one finds that low socio-economic status children consume their fruit and vegetables at school, while those with high socio-economic status do so at home, thus suggesting school as a possible intervention site, if low socio-economic status children are the target. Parental intake was found to have a positive effect on children's consumption of F&V in 8 out of 9 papers, while home availability and consumption were positively associated in 3 of 3 studies.

Availability and accessibility as well as parental consumption were repeatedly associated with increased consumption of fruit and vegetables both for children who liked these foods and those that did not (Reinaerts *et al.*, 2006; Blanchette *et al.*, 2005; Veerecken *et al.*, 2005.) Where traditionally populations are characterised by low fruit and vegetable consumption availability and nutritional knowledge as well as self efficacy were important to consumption among children (Kristjansdottir *et al.*, 2006).

¹ Only quantitative analyses of actual interventions for fruit and vegetables consumption in the 6 to 18 age group with evidence of a constructed evaluation table were included. Almost 49% of the papers were based on US populations; only 8 utilised longitudinal data and 12 a theoretical framework. The sample populations were not necessarily representative of a given age group of a country. Thus caution in using the results as reference base is needed.

Part III. Survey results

The following section synthesizes the responses to the Survey on Policy Initiatives for Diet, Nutrition and Health from Ministries of Agriculture and Food. The objective of the survey is to construct a database with the OECD Health Division of new policy initiatives that could be shared among OECD countries. As the World Health Organisation (WHO) is also developing an interactive database which will permit sharing of policy information for all its members, information from this project will be forwarded to the WHO unless countries have specific objections.¹⁵

In the Survey on Policy Initiatives for Diet, Nutrition and Health, governments were requested to report on their most important or innovative initiatives under their sole responsibility or in collaboration

at risk (Ammerman *et al.*, 2002, Marcus *et al.*, 2001). However, follow up periods for most studies were not very long, not cohort based and did not provide assessments of their cost-effectiveness.

¹⁵ The WHO is developing an inter-active data base containing policies directed towards improving diets and health; most of these originate in Ministries of Health. Information gathered from this study will be shared with WHO for their database development.

with other agencies over the past 5 years. In particular, they were asked to report on the target group, objectives, outcomes and administrative responsibilities and provide the name of a contact person and website address for each initiative. The responses to the surveys were quite limited, with only 11 responses from Ministries of Food and Agriculture and not all of these strictly kept to the terms of reference. Some of the responses described quality assurance programmes or promotional campaigns of traditional or organic foods or simply promotion of agricultural production.

The OECD Health Unit sent a similar survey on policies in the areas of nutrition, physical activity and obesity to OECD Ministries of Health. Where responses referred to initiatives with Ministries of Food and Agriculture, these are included in responses for this project. A copy of the survey sent by the OECD Agricultural Secretariat is available on request from the Secretariat.

What did the surveys find in terms of policy initiatives?

The main policy initiatives reported in the survey can be categorised as follows:

- Labelling regulations to inform consumers of nutritional content of foods;
- Educational campaigns to promote healthy diets and special programmes targeted to children;
- Promotion of consumption of fruits and vegetables for the general population
- Fruit and Vegetable distribution programmes for school children.

Annex 1 summarizes the responses according to the above components by country and whether the initiative is uniquely under the Ministry of Food and Agriculture or jointly undertaken with the Ministry of Health or other governmental organizations and whether it includes industry participation. Most responses fall into the category of educational campaigns meaning that the greatest efforts are being made to increase consumers - adults' and children's - knowledge-base so as to enable them to make informed choices. In certain instances these are being undertaken with collaboration from the food industry and/or agricultural producer groups. In the promotion of fruit and vegetable consumption, particular efforts are being made to stimulate children's demand and to acquaint them with these foods. Producer and industry groups have been significant players in these programmes both for funding, product distribution and working out the supply side of programmes. Information and learning in these cases also includes tasting or experiencing new foods. Given the synthetic description of programmes requested and provided, it was not possible to provide detailed analysis of how these are embedded in their national policy frameworks or how they might be evaluated from a cost effectiveness perspective.

Table 2. Distribution of survey responses according policy initiatives reported

Source of initiative-authority/funding/	Labelling regulations	Educational campaigns : healthy diets and child targeted programmes	Product Promotion: Fruit and Vegetables	Product innovation	Distribution programmes: Children and specific populations
Ministry of Agriculture	Fr, Hu,Es	Dk,-4; De-2, Es-3, It-2, Fr-5, Hu-2, NI-4 ² ,US-6	Hu, Dk, Es, Fr, Ie, Mx, EU, Po	Ie	
Ministry of Health and/or Food Safety	Ca,Fr,Mx, NI	Mx-3, Po, Ca, NI-4 ²	Fr, Uk, Es, Ie, Dk	Fi	Mx-3 ¹ ,US-1,EU-1
Food Industry and/or Producer group collaborations		Dk-2, It-2, Fr-2, Hu-1, NI ²	Ie Fr, Es, Dk, Mx,NI	Fi, Ie, NI ²	

Country codes: Ca-Canada.; De-Germany; Dk-Denmark; Es-Spain ; Fi-Finland; Fr-France; Hu-Hungary; Ie-Ireland; It-Italy; Uk-United Kingdom, Mx-Mexico, Netherlands-NI, Po- Poland, EU-European Union, US-United States .

Numbers refer to the number of initiatives reported in the survey.

1. Mexican Ministry of Social Affairs

2. Netherlands Nutrition Centre- jointly funded by the Ministry of Health, Welfare and Sport and the Ministry of Agriculture, Nature and Food Quality.

Table 2 enumerates the number of initiatives by country across general programme types and source of initiative/funding. Thus, Es-3 under Educational campaigns and Ministry of Food and Agriculture means that there were 3 initiatives reported by Spain with respect to education undertaken or financed by the ministry of agriculture. In the following paragraphs a selection of different initiatives from the reporting countries are highlighted to provide an understanding of the types of initiatives underway.

Educational Campaigns

Educational campaigns to promote healthy diets and to increase fruit and vegetable consumption were the most frequently reported initiatives. These include initiatives in Denmark, Germany, France, Hungary, Ireland, Wales, Italy and Spain. Among the more successful approaches to the promotion of healthy diets for children is the **Food Dudes** programme, initially begun in Wales, UK and subsequently adopted on a wide scale in Ireland by the Ministry for Agriculture, Fisheries and Food. This programme was given the World Health Organization's Best Practice award in 2006. See Box 3 for highlights of this innovative initiative developed by psychologists and nutritionists to promote healthy food choices by children.

In Denmark the Food and Veterinary Administration has, as one of its objectives, to promote better food and a healthy diet. The project, **Everything about Diet** is intended to stimulate the set up of a range of dietary schemes in schools and institutions (www.altomkost.dk). The goal is for schools and institutions to take responsibility for their diets but with guidance from the government. The '**6-a-day**' programme is a major and permanent project whose purpose is to stimulate the general population to attain a consumption of at least 600 grs a day of fruits and vegetables. The '**Food Compass**' provides the symbol that connects the 8 Danish recommendations concerning diet and physical activity introduced in 2007 and is already known by over 80% of the population as is the '**6-a-day**' programme . Many of these initiatives are developed in cooperation with producers and the food industry as well as health organizations. This is the case for the '**Children's Box**' programme for children in child-care centres. Educational materials are

provided to schools to promote healthy diets and physical activity through different learning activities, updated 4 or 5 times a year. The **'Everything about Diet'** programme, aimed at educating children, is however financed and run only by the Danish Food Administration on a permanent basis

In Italy, joint efforts of the Ministries of the Family and Education in addition to that of Agriculture have integrated the WHO initiative **'Gaining Health'**, through the **'Eat Well Grow Better'** programme for middle school children and the **'Food 4U'** programmes, aimed at secondary school children. These programmes have attempted to make children aware of their food choices and involve them in a creative and interactive way in understanding their choice process. The use of modern advertising language has been a key innovation for government in this campaign and was undertaken in cooperation with the food industry.

Box 4. Food Dudes Programme: modifying children's food choices

The Food Dudes programme was initially developed by the Bangor Food and Activity Research Unit (BAFARU), Wales, UK, and financed by the Economic and Social research council (ESRC) and Unilever. The study targeted more than 450 children between ages of 2 and 7 in homes, schools and nursery schools. The results were impressive in all environments and were found to extend across environments, from school to home and from snack time to lunchtime. Following the initial successes, the BAFARU developed packages to enable primary schools themselves to implement the programme across a full age-range of school children. This research effort was funded by the Horticultural Development Council, the Fresh Produce Consortium, Asda, Cooperative Wholesale Society, Safeway, Sainsbury's, Somerfield, Tesco and Bird's Eye Wall's and monitored by the Departments of Health and Education, Environment, Food and Rural Affairs as well as the Food Standards Agency. The programme was judged successful and considered to be particularly effective for children from lower socio-economic groups who are in need of dietary improvements.

How does it work?

The programme works by encouraging children to taste fruit and vegetables repeatedly so they are able to develop a liking for them. The two key elements are peer-modeling and rewards. Children watch videos featuring Food Dudes, a group of positive role model kids who gain superpowers when they eat fruit and vegetables that help them in their battle with General Junk and Junk Punks who are taking away the energy of the world by depriving it of healthy food. Children then have an opportunity to taste the fruit and vegetables, which help them to develop a liking for these products. If they succeed in consuming these foods then stickers and variety of Food Dude prizes are given as rewards. This combination of biological and psychological factors maintains the children's change of eating behaviour over time as subsequent studies have shown. Evaluations conducted up to 18 months after indicate continued high consumption of fruits and vegetables. This result also indicates the need for parents and schools to continue to be active in ensuring the availability of fruits and vegetables at home and school.

Following the success in the UK and successful pilot in Ireland, the Food Dude programme is being made available to all primary schools in Ireland over the next five years as well as being rolled out in Wolverhampton in England as part of a Primary Trust Initiative including 20,000 children with a budget of GBP 575,000. It has gained interest in other OECD countries.

In 2006 the Food Dudes Programme received the Counteracting Obesity award from the WHO. The programme is also investigating how its approach can be used to increase physical activity in children. www.fooddudes.co.uk

In Hungary the **'3 X 3 a day'** programme to increase fruit and vegetables consumption to 600 grs per day has been developed by the Ministry of Agriculture with support from national and community level marketing groups. Other educational programmes include the **'Healthy Nutrition'** programme and the **'Nutritional Education'** programme for elementary school children that aim to increase school-age children's knowledge of a healthy diet to help make healthier food choices.

In Spain educational efforts have frequently taken the form of television advertising campaigns, such as short spots promoting fruits and vegetables or balanced diets. Spain's outreach programmes to promote healthy food choices are formulated and disseminated through joint efforts with consumer organizations, industry and foundations. For instance the work with the Spanish Foundation of Nutrition not only does outreach work to inform consumers of the importance of balanced diets but also engages with industry and the scientific community to work towards improving diets through improving quality and availability. The Ministry for Agriculture (MAPA) has also been active in educating the population on the health promoting aspects of a balanced Mediterranean diet by joining forces with Spanish Foundation of the Mediterranean Diet.

In Germany, the Ministry of Health and the Ministry of Food, Agriculture and Consumer Protection have collaborated in drawing up a National Action Plan to promote a healthy diet and more physical activity. The aim is to improve nutrition and facilitate a healthy lifestyle for all age groups to prevent obesity by providing better information about the importance of a balanced diet and physical activity as well as improving living conditions. Both the federal states and local governments have also been involved in this process. The initiative will run from 2008 to 2020. Teaching materials and information for all aspects of a healthy diet are also provided under the title of "Talking Food".

In France, the Ministry of Agriculture has become an active participant in the national programme of nutrition and health (PNNS) which includes Ministries of Research, Education, Economics, Health, Youth and Sport, through promoting supply side initiatives to facilitate healthy food choices. The main food industry association, ANIA, and 18 consumer associations participate in programme consultations. The PNNS programme has as one of its major objectives to inform and to assist consumers to make better food choices, through the development of food guides for the general population and target groups as well as media campaigns and a website, www.mangerbouger.fr. The objectives include: an increased fruit and vegetable consumption, a reduction in the average proportion of lipids in daily energy intake to less than 35%, an increase in the consumption of carbohydrates to account for over 50% of energy intake and an increase in dietary fibres of 50%. The role of the Ministry for Agriculture has been to accompany the evolution of the food supply towards the objectives of the PNNS. The PNNS programme operates with a diversity of actors, on both the demand and supply side and promotes a variety of innovative initiatives. Some of these are briefly described in Box 4.

In the United States, the Center for Nutrition Policy and Promotion (CNPP) of the USDA, is the main agency providing nutritional information and guidance for consumers. Its key educational tool for this task is the MyPyramid, developed with the department of health and human services and revised every 5 years. The MyPyramid provides nutritional guidelines which can be personalised on the interactive website. Nutritional information is also available through podcasts (www.mypyramid.gov). It has also been tailored to different groups including preschool children, kids, and pregnant women to provide tailored menu planning and information on nutrition.

Box 5. Expanding role of agriculture to meet new societal challenges

In the context of the PNNS programme the French Ministry of Agriculture (MAFF) supports several new initiatives. One such initiative which also promotes diversification of farm activity is the '**Good Shape in Farms / Forme en Ferme**' programme to inform consumers of links between health and food, to educate consumers in food qualities and preparation methods and to provide an opportunity to get into shape through diverse farm activities, such as gardening or simply bicycling, country hikes and exercise. This is undertaken within a context of the farm bed and breakfast system which includes opportunities to experience farm healthy meals. The Ministry also supports nutritional education programmes for teenagers in rural schools. Another interesting effort is that of providing financial incentives through loans to mobile vendors of ready-to-eat fresh fruit and vegetables in public places, such as metro and train stations as well as airports. In one instance, funding was available on a trial basis to a vendor on a tricycle equipped with a refrigerated box, to sell ready-to-eat fruits and veggies at certain metro stations. This effort has been successful and may be expanded.

The Ministry has involved the food industry in supplying a more healthy selection of products to consumers and has provided them with incentives through partnerships in different campaigns and charters to commit them to these efforts. The Ministry of Agriculture and Ministry of Health have jointly created a food quality observatory whose objective is to monitor the entire food supply, focusing on nutritional quality of products (nutritional composition, portion size, etc) as well as data on food prices, sales and promotions and purchasing patterns. It is to document and to monitor efforts by the food sectors and to ensure that the corresponding charters agreed upon with government have been fulfilled. This approach is considered an effective lever for engaging food sector professionals to improve the nutritional quality of their products and is viewed as a valuable decision-making tool for government.

Fruit and Vegetable distribution programmes

In the Netherlands, the Ministry for Agriculture, Nature and Food Quality has collaborated with the Ministry for Health, Welfare and Sport to fund the Netherlands Nutrition Centre which is engaged in a wide array of educational programmes for school age children as well as the general public to promote healthy eating. Among the programmes are the Fruit and Vegetable Campaigns for the public, school children and in the workplace. In addition they have promoted cooperation with the food industry for healthy food innovations or innovative healthy eating campaigns. A special effort has also been made to reduce overweight and obesity among the population through the "**Balance Day**", the '**Lighten up**' campaigns which focus on assisting the population in making food choices which balance energy intakes and expenditures. The variety of activities and projects funded is evidence of the importance given to food consumption and health issues.

The EU Agriculture Directorate has recently launched a programme, **School Fruit Scheme**, to increase fruit consumption of school age children to foster healthy eating habits, to help stem the rising rate of obesity among children, to contribute to improved health as well as to reverse the declining consumption of fruit and vegetables. It provides for a budgetary allocation of EUR 90mn for the free provision of one piece of fruit or vegetable per week for the 6-10 core age group. This is based on a unit cost of about EUR 20 for 26 million children times 30 weeks per year. The recipient countries are required to finance 50 % of the cost (25% for convergent MS) but are allowed to determine how to distribute the funds so as to meet specific needs. For instance countries can allocate the funds to disadvantaged areas and/or increase the number of units of fruit and vegetables provided per week for shorter periods. The total budget will be EUR 156 million of which EUR 90 million from the EU and EUR 66 million from national budgets. Monitoring and assessment is required of all recipient states.

This initiative, which facilitates an increased availability of fruit and vegetables for school age children, though quite limited at this stage, could have a positive impact on children's fruit consumption. However analysis of outcomes in terms of consumption will be needed to assess its health benefits. Some

criticisms have been voiced by members such as Sweden and costs appear to be a positive move in the right direction. It could possibly also open discussion on other product promotions which may have health implications, such as in the school milk programme.

In the United States, the Fresh Fruit and Vegetable Program has recently been funded through the Food, Conservation and Energy Act 2008(Farm Bill) enacted into law in June 2008. The Nutrition Title of the Farm Bill expands mandatory funding for Fresh Fruit and Vegetable Program with an additional USD 40 million in 2008, USD 65 million in 2009 and USD 101 million in 2010 and USD 150 million in 2011. The FFV programme distributes funds to schools for purchase of fresh fruits and vegetables. The results of pilot programme, which provided funding for fresh and dried fruits and fresh vegetables to over 100 schools in 4 states in 2002-03 indicated that nearly everyone recognized some health benefit or other value from the pilot. School staff believed that the pilot lessened the risk of obesity, increased attention in class and reduced consumption of less healthy food and the number of unhealthy snacks brought from as well as increasing consumption of fruits and vegetables at lunch. Under the pilot programme administrative costs, such as storage, labour and equipment were limited to 10% of the total and some expressed need to increase this so as to improve the variety of fruit choices. Some schools bought higher priced pre-sliced or pre-packaged fruits to keep within the 10% limit of overhead costs.

Food Research and Innovation to Improve Diets

While most efforts to improve food choices focus on educational or informational programmes, there are some policy initiatives, which attempt to provide more nutritious food offerings through innovation and product design. For instance in Finland, the ‘**Smart Snacks**’ project tries to make the healthy choice the easy choice through development of snack foods which follow dietary guidelines but are tasty and appealing to specific age groups. The project also works on providing healthy meals that can appeal to the different age groups. Research programmes are developed through collaboration of industry, the University of Kuopio, the VTT Technical Research centre, and the Ministry of Public Health in addition to a wide range of health organizations and associations. SITRA also funds small and medium-size enterprises engaged in research and development of food innovations which can provide healthful food alternatives for different age groups of consumers. In Ireland, the Food Institutional Research Measure (FIRM) of the Ministry for Agriculture is active in the development of a new generation of consumer-focussed products with enhanced health benefits. Innovation in healthy foods in the Netherlands can be rewarded through the Nutrition Centre’s Annual Good Food Prize.

Food Labelling

Food labelling was indicated as an important initiative by France and Hungary. The Canadian Health Ministry and the Food Inspection service collaborate in setting mandatory nutrition labelling on pre-packaged foods. In France and Hungary emphasis on voluntary labelling with respect to daily requirements was considered as a way to increase awareness of quantities and nutritional values consumed. These initiatives should assist in making more nutritionally balanced choices, thus reducing market failures with respect to information on the nutritional content of foods.

Food quality assurance and product promotion

Food quality assurance and product promotion initiatives can also affect food choices, though these may not aim to promote healthy diets. The Ministry for Agriculture in Poland focuses on improving food quality and disseminating information on the value of traditional products. Campaigns to promote milk consumption have however emphasized the nutrition value of certain dairy products, for osteoporosis prevention. This approach is similar to other efforts where initiatives fall into an intermediary position

between promoting the consumption of food products and educating the population on the value of traditional and high quality foods, such as in Poland, Hungary and Spain.

Role of the private sector: from farmers to food industry and retailers

Many of the initiatives reported in the survey indicate that the food industry and producer organizations were involved in their implementation. This is the case for Denmark's **6-a-Day** and **Children's Box**; Hungary's **3X3**; Italy's **Food4U**; France in facilitating healthy food offerings; and Spain's involvement through the Spanish Nutritional Foundation. In the Netherlands the horticulture producers were managing the **Fruitables for School** programme. Involvement also occurs through making foods such as fruits and vegetables available to school canteens or for snack times, and in other cases it may mean adjusting food recipes to correspond to dietary guidelines set by public authorities. Since food advertising by industry is very successful, certain governments are collaborating with industry to bring specific policy messages to the public.

Policy statements in Italy, Germany, France and Ireland by public health authorities indicate that the participation of the private sector is fundamental if diets are to be improved and the incidence of nutrition related chronic diseases and of overweight and obese persons are to decline.¹⁶ This view arises from the recognition that dietary choices depend in part on environmental factors which include the access to and availability of healthy foods. In Italy and Germany, public health authorities explicitly noted that the task cannot be done uniquely by the health system but requires efforts of all participants in the food system.

Part IV. Summary of findings

Most of the initiatives reported in the survey responses have two main objectives: to assist consumers – adults and children – in making healthy food choices through the provision of information, and to promote increased consumption of fruits and vegetables. Overall the survey responses indicated a substantial effort underway in reporting countries to engage in collaborations with diverse government agencies and the food industry as well as consumer and health organizations through educational and information campaigns to promote healthy diets.

Information is seen as a key necessary ingredient to make healthy food choices, thus initiatives are focused on communicating the information and advice so that it becomes an effective instrument to affect food habits. This information approach has generated a wide variety of initiatives such as, dietary guidelines, food pyramids, mandatory and voluntary labelling and innovative teaching programmes based on information to promote healthy food choices.¹⁷

¹⁶ Germany: 'Badenweiler Statement, 02/2007, Prevention for Health. Nutrition and Physical Activity –A key to Healthy Living.

http://www.bmelv.de/clin_044/nn_757132/EN/04ood/BadenweilerDeclaration.templateId=renderPrint.html

France: Programme National de Nutrition, http://www.sante.gouv.fr/htm/actu/34_010131.htm

Italy : Guadagnare Salute, http://www.governo.it/GovernoInforma/Dossier/salute_progetto/dati.html

¹⁷ Providing nutrition information to consumers to assist them in making informed dietary choices has been one of the main reasons for mandatory food labelling in many countries. Generally speaking, as links between diet and health based on empirical evidence increase, governments translate these into practical advice on diet to consumers (Variyam and Golan, 2002).

The information approach is an effective one in getting people to make certain dietary choices. This can be evidenced by the large sums spend by the food industry in advertising.¹⁸ Studies on labelling, and educational programmes from a range of countries attests to their efficacy even if information alone may not be sufficient to alter choices. Indeed, nutrition education programmes for children often go further than provision of knowledge or information: they frequently incorporate the taste and preparation experience, particularly for fruit and vegetables. This approach is to develop occasions for learning experiences and as well as knowledge, such as in the **Food Dudes Programme** or the set of Danish programmes.

Nonetheless, more evidence is needed to better evaluate the ability of information strategies in terms of government-led educational campaigns to effectively modify eating habits. Few studies have undertaken rigorous analysis on the impacts of information/educational campaigns and more are needed. The form or 'packaging' of the message may be as important as its content in producing results and this may need greater collaboration with industry in how to bring messages of healthy eating to consumers. As the issue of obesity and nutrition related chronic diseases has moved up the public policy agenda, cost-effective analysis of projects such as those presented here, can permit policy makers to refine their strategies to achieve their goals more efficiently. Given the importance of the task facing governments and the myriad of factors which affect individual lifestyle and food choices, a multi-sector approach, engaging different stakeholders on the demand and supply side will be needed and will certainly need overall government engagement.

Both the literature and our survey indicate that substantial efforts are underway to promote increased intakes of fruits and vegetables by children and are frequently school-based (Knai *et al.*, 2005; Dok *et al.*, 2007, Bere *et al.*, 2007;). Research shows that the most successful interventions are those that are multi-component and increase children's exposure to fruits and vegetables. Thus free distribution schemes, particularly for children of disadvantaged areas or increased selection of fruit and vegetables at school cafeterias or their frequency at school events or activities can provide opportunities for their consumption. For instance, in Norway a school based, year-long free distribution programme increased consumption by .38 to .44 servings per day three years after the cessation of the programme (Bere *et al.*, 2007). Though these amounts may not appear significant, Bere suggests that a life-long increase of as little of 2.5 gm of fruit and vegetables is sufficient to make free distribution in primary schools cost-effective. Promoting fruit and vegetable consumption in school cafeterias may also be tied to relative prices of offerings. A 3-week experiment in secondary schools in the US was undertaken in which the prices of salads, fruit and carrots were reduced by 50% and then returned to normal. Results showed significant increased during the reduction period: fruit sales increased 4-fold and carrots doubled (French *et al.*, 2003). Thus opportunities for influencing food behaviours are manifold, though the initiatives may require substantial cooperation across government agencies and with the private sector.

In designing new interventions it is important to be able to identify most cost-effective programmes. Thus from a policy design perspective the availability a body of comparative analyses based on different experiences would be most useful. For instance the newly announced European Union's School Fruit Scheme will provide an opportunity for having comparative results on different interventions where the common element is the free distribution of fruit and vegetables to 6-10 year olds. More analyses based on large cohorts over extended time period are important to understand the dynamics of diet and health linkages and what levers may be or may not be available to governments in their efforts to reduce the incidence of non-communicable diseases.

¹⁸In 1999, the advertising for food products was USD 7.3 bn (Harris *et al.*, 2002).

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Annex1. Diet, Health, and Nutrition Policy Initiatives Survey Results

Country	Initiative	Target Group	Main Objectives	Responsibility	Outcomes and time period
<i>LABELLING INITIATIVES</i>					
Canada	Mandatory nutrition labelling on pre-packaged foods	Provide information to make informed food choices.		Health Ministry and Canadian Food Inspection Agency	No evaluation indicated
Hungary	GDA –Based voluntary labelling program : Joint work within the Hungarian Platform on Diet, Physical Activity and Health (December 2006-2007).	Hungarian Population	GDA guided labelling to inform Hungarian consumers of product content.	Ministry of Agriculture and Rural Development, National Institute of Food Safety and Nutrition (Funded by Industry.)	Successful: agreed standards have been worked out on how the system should be implemented. Food companies have already introduced some products with the new voluntary labelling scheme, however promotion is needed in order to raise the awareness of consumers.
France	Voluntary nutritional labelling in terms of GDA.			Agence Française de Sécurité Alimentaire- (AFSA) with support of Ministère de l'Agriculture et de la Pêche (MAFF). 3-year programme.	To be evaluated after 3 years.

Spain	Campaign on Food Labelling to inform on the content of labels for food.	Consumers, food processors, wholesalers and retailers.	Not set yet	General Director of Food and Promotion and Inter-branch Organizations funding from MAPA.	2007 onwards- no evaluation indicated.
<i>EDUCATIONAL PROGRAMMES PROMOTING HEALTHY EATING AND/OR FRUIT AND VEGETABLE CONSUMPTION</i>					
Denmark	Everything about Diet	Children in schools and child-care centres.	Promote a healthy and nutritionally correct diet in child-care centres and schools. Comprehensive programme which summarizes the Danish Veterinary and Food Administration's knowledge about healthy food and nutrition, and is also intended as the point under which we can bring together our knowledge of nutrition and disseminate it in a form in which it is comprehensible to all. It includes an interactive website, development of a telephone hotline for nutrition advice and information and an itinerant team of professionals to visit schools and institutions diet and health information and advice.	Danish Food Administration; Permanent programme	Evaluated in July 2004: increased the number of child-care institutions and schools which diet policies or serve children food during the day. Their number is monitored yearly. Over DKR 6 million is earmarked for evaluating and researching the effects of food served in schools.

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	The Food Compass	Danish Population	A symbol that connects the 8 Danish recommendations concerning diet and physical activity, which promote a healthy and nutritionally correct diet. Introduced Jan. 2007.	Network of institutions and organisations and the Danish Food Administration and the National Board of Health.	About 80% of the population has seen campaign advertisements as of August 2007. From June 1 to June 26 60000 persons visited the www.altomkost.dk site and tested their eating habits.
	6-A DAY Fruit and Vegetable Partnership	Danish Population	Increase fruit and vegetable consumption.	Public-Private Initiative: Industry, health organizations, The Danish Food Administration and the National Board of Health.	
	Children's Box	Children in child-care centres	Educational materials in a box for child-care centres to promote healthy diets and physical activity with new boxes issued 4 or 5 X a year.	Partnership between Danish Food Administration , Industries and Educational Institutions	Not yet evaluated
	Diet in a nutshell – 'Food for you', 'Food for the Many' and 'Food in schools and institutions'	Danish population, food professional.		Danish Veterinary and Food Administration.	
Germany	Eat Better, Move More	German Population	24 Regional Projects to establish a networking structure to prevent obesity.	Ministry of food, agriculture and consumer protection.	
	Talking Food		Supports teaching materials and information portal for all aspects of a healthy diet.	Federal structure and Landers and local governments.	

Germany	National Action Plan IN FORM	German Population	Promote healthy diets and physical activity in all ages.	Ministry of health and Ministry of food, agriculture and consumer protection.	
France	National programme of nutrition and health (PNNS)	French Population	To improve nutrition of the population and provide a charter of good conduct to provide for healthy diets from the farm through food service sector.	Collaborative programmed between ministry of Agriculture, Health and Industry.	
	Distribution of Fruit in Schools-	School age children	To increase fruit consumption by school age children.	Ministry of agriculture and education.	Pilot programme.
	Initiatives to promote Sale of fresh fruit and vegetables in public areas: train stations, metros and airports : -Tricycle + refrigerated box for prepared fresh F&V at metro's/trains/bus stations -charts on to expand F&V offerings in publically funded canteens.	French Population	To encourage consumption of fruit and vegetables by making the healthy choice the easy choice through facilitation of access to products.	Ministry of Agriculture support activities of farm organisations and the like in marketing fresh fruit and vegetables.	Pilot programmes in different cities in France : outcomes to be evaluated in the coming year.
	Sens du Gout-Forme en Ferme-guided educational activity at farm level often finished off with meals at the farm.	General population		PINNS programme-AFSA and MAFF.	

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	Publicity campaigns	Inform population via health message which includes diet and sport advice.		Ministry of Agriculture and Health Ministry.	To be evaluated date undetermined.
	- Promote innovation	Research to meet new diet needs and maintain competitiveness of food industry: increase fibre content, increase nutritive values and lower content of saturated fats, salt , etc.			
Hungary	Eat 3X3 Vegetables/Fruits for Health(since 1997) www.3X3.hu	Hungarian population	Increase Fruit and Vegetable consumption to 600 grams a day per person.	Ministry of Agriculture National and community marketing support.	Observed small increase in consumption of vegetables and fruits. Campaign to be continued as it is considered to be highly important.
	Healthy Nutrition Programme	Hungarian population			
	Educational Programme for elementary schools as part of Hungarian Platform on Diet Physical Activity and Health.	Elementary school children and their parents.	To educate children to become health conscious adults when they grow up. Educational material to provide information on healthy lifestyle, good diet and physical activity.	National Consumer protection.	Considered successful due to attention it has drawn but need a long term evaluation and this is difficult.

Ireland	“Food Dude” Initiative	School children	Encourage children to taste and learn about benefits of eating more fruit and vegetables.	Ministry of Agriculture and Food and participation of the food industry and producer groups; Award winning programme and being adapted in other countries/regions.	Evaluation performed every 3 years.
Italy	Gaining Health- food 4U	Secondary school children	Encourage healthy behaviours in the formative years during phases of life. make young people aware of the importance of understanding their own food choices and involving them in a creative and interactive manner through use of advertising language.-	Inter sectoral Programme : Ministry of Health, Ministry of Agricultural Policy Ministry of Education, Ministry of the Family, etc.	No evaluation indicated
	Gaining Health- Eat well, Grow better	Middle school children	Make young people aware of the importance of understanding their own food choices and involving them in a creative and interactive manner through use of advertising language.-	Inter sectoral Programme : Ministry of Health, Ministry of Agricultural Policy Ministry of Education, Ministry of the Family, etc.	
Mexico	Cinco por Día (5 A Day) www.cincopordia.com.mx	Children and Housewives	To promote increased consumption of fruits and vegetables through effective communication.	Ministry for Education and Health and Ministry of Agriculture, Farming and Rural Development. Supported by FAO and WHO Contact:blanca.villarello@ascerca.gob.mx, blnc.villarello@aserca.gob.mx	1/2003-ongoing

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Netherlands	Development of 'Youth and Nutrition' programme	School age children	To make available effective educational programmes on nutrition at schools and to integrate goals of the Fruit and vegetable at school programme and the Flavour Lessons activity.	Netherlands Nutrition Centre and Ministry of Agriculture, Nature and Food Quality	2008 and beyond
	Netherlands Nutrition Centre	General population and specific groups such as children, youth and elderly.	To provide information to consumers, to undertake campaigns and projects to achieve changes in food consumption behaviours and to interact with scientific, commercial and political and local communities.	Funded by Ministry of Agriculture, Nature and Food Quality and Ministry of Health, Welfare and Sport.	Continuous http://www.voedingscentrum.nl/Voedingscentrum/English/Netherlands+Nutrition+Centre.htm
	Healthy School Canteen	Students: focus on ages 12-16.	Varied educational programmes to promote a healthy range of food products, offering advice about healthy choices and involves teachers, students, employees and parents. Includes, "know what you are eating" programme on line.	Netherlands Nutrition Centre	Continuous
	1-'Fruitables' at school campaign 2-Fruit and veg campaign	1-School children in 7 cities 2- General population	1-To get children to see fruit and vegetables as tasty, healthy and 'cool' so as to make part of their daily school routine 2-Five year campaign to increase fruit and veg consumption.	1-Initiative of Netherlands Nutrition Centre and Dutch Horticultural Board with the latter being in charge. 2-Netherlands nutrition centre.	1-2008 2- 2007-2012

	Nutrition Knowledge Agenda	General population	Establishes recommendations for nutrition research with the aim to improve diets and health of the population.	Collaborative funding effort of Ministry of agriculture, Economic Affairs and Health, Welfare and Sport.	2009 and beyond
	Nutrition Centre's Annual Good Food Prize	Annual prize for food manufacturers and retailers.	Prize established to stimulate developments geared towards improving the diet of the population and to encourage industry and business to incorporate health into product development and innovation.	Administered through Netherlands Nutrition Centre contact: gurp@voedingscentrum.nl http://www.voedingscentrum.nl/Voedingscentrum/English/Annual+Good+Food+Prize.htm	Continuous

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United States	MyPyramid	Consumers of all ages	Offers personalized food plans, nutritional guidance, and advice on balancing food intake and physical activity.	USA Center for Nutrition Policy and Promotion.	<p>The MyPyramid Food Guidance System translates the <i>2005 Dietary Guidelines for Americans</i> into messages that consumers can more easily understand and put into practice.</p> <p>A multiyear, multiple component research process was undertaken to revise the original Food Guide Pyramid and to develop the MyPyramid Food Guidance System. This research has been documented in a number of articles published as a supplement to the <i>Journal of Nutrition Education and Behavior</i> in November/December 2006. (see http://www.mypyramid.gov/professionals/index.html)</p>
	MyPyramid for Pregnancy and Breastfeeding	Women who are pregnant or breastfeeding.	Provides tailored menu planning and nutritional and food safety information for pregnant and nursing mothers.	USA Center for Nutrition Policy and Promotion.	See above.

	MyPyramid for Preschoolers	Parents and caregivers for children ages 2-5	Provides tailored food plans, nutritional guidance, and educational materials to help preschoolers develop healthy eating and physical activity habits.	USA Center for Nutrition Policy and Promotion	See above.
	MyPyramid for Kids	Children ages 6-11	Helps children understand food groups and make balanced food choices for good diet, while encouraging participation in physical activities.	USA Center for Nutrition Policy and Promotion	See above.
	Eat Smart, Play Hard Campaign	Children and adults, especially parents and other caregivers	Encourages and teaches children and adults to eat healthy and be physically active.	USDA Food and Nutrition Service	The Eat Smart. Play Hard.™ Campaign was launched by USDA's Food and Nutrition Service (FNS) in 2000. Eat Smart. Play Hard.™ offers resources and tools to convey and reinforce healthy eating and lifestyle behaviours that are consistent with the Dietary Guidelines for Americans and the MyPyramid Food Guidance System.

	Fruits & Veggies — More Matters™	Consumers of all ages	Encourages and supports consumers to achieve increased daily consumption of fruits and vegetables.	The Centers for Disease Control and Prevention (CDC) and Produce for Better Health Foundation (PBH), leading a public/private partnership with other health organizations.	Fruits & Veggies — More Matters™ is a dynamic health initiative that consumers will see in stores, online, at home and on packaging. It replaces the existing 5 A Day awareness program and will leverage the 5 A Day heritage and success to further inspire and support consumers to eat more fruits and vegetables. It also will build upon the body of science that indicates that increased daily consumption of fruits and vegetables may help prevent many chronic diseases.
<i>FOOD RESEARCH AND INNOVATION FOR IMPROVED DIETS</i>					
Netherlands	Covenant on Overweight and Obesity	General population	To fight against overweight through a joint action plan focused on restoring the balance between eating and physical exercise.	Ministry of Health, welfare and Sport and ministry of Agriculture, Nature and Food Quality and other agencies Contact: cs.frenkel@minvws.nl	2005-1010

Poland	Consumer information for milk	Polish population	Popularize the health protection effects of milk: bioactive substances in milk and health protective nutrition.	Ministry for Agriculture	
Spain	Agreement with Spanish Foundation of Nutrition (FEN) Website: www.mapa.es/es/alimentacion.htm	Consumers, scientific community and food industry.	To promote joint actions in outreach and advice on food consumption as well fostering links between scientists, food industry and consumers.	Food directorate Directorate for Food Industry, Innovation and Food Marketing Contact: jherrero@mapa.es	07.2006 to 6/2010 Preliminary evaluations rate the programme as successful and will be continued if positive outcomes continue.
	Basic Agreement between MAPA and 8 consumer associations	Consumers	To improve consumer knowledge about food sector and the role of different agents in the chain	MAPA and consumer associations Contact: jherrero@mapa.es	31/07/2007 to 31/12/2011 Evaluation at end of programme
<i>FOOD DISTRIBUTION SCHEMES</i>					
European Union	School Fruit Scheme	6-10 year old school children. 1 piece of fruit per week.	To increase fruit consumption among children for improved health and for product promotion.	DG Agri Contact: Felix Mittelmeyer@europe.ec	July 2008 undefined ending point Periodic monitoring and evaluations.

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	<p>Agreement between MAPA and Spanish Foundation of Mediterranean Diet www.dietamediterranea.com</p>	<p>Consumers, general public and scholars.</p>	<p>-- To provide the consumer with information and education on food products related to the Mediterranean diet. - To promote the advantages of a balanced Mediterranean diet, particularly for children. - To foster the name "Mediterranean Diet" as a generic denomination for many Spanish food products; - To make Spain a platform for the promotion of the Mediterranean diet at the international level.</p>	<p>MAPA Contact: sgprinter@mapa.es</p>	<p>20/07/2006-31/12;2009 Criteria are set by annual agreements monitored by commissions determined by the agreements. Today it has been very successful. The general public is found to be very interested in proper nutrition and the Mediterranean diet in particular. The programme will be repeated.</p>
<p>United States</p>	<p>Fresh Fruit and Vegetable Program</p>	<p>School children</p>	<p>Distribute funds to schools for purchase of fresh fruits and vegetables for feeding programs; pilot designed to identify best practices for increasing fruit (both fresh and dried) and fresh vegetable consumption in schools.</p>	<p>USDA Food and Nutrition Service</p>	<p>Established as pilot by 2002 Farm Security and Rural Investment Act; interim report produced in 2007 http://www.fns.usda.gov/cnd/FFVP/FFVP_07Report.pdf); further evaluation provided in <i>Evaluation of the USDA Fruit and Vegetable Pilot Program: Report to Congress</i> (http://www.ers.usda.gov/Publications/ERAN03006); program reauthorized and expanded under 2008 Food, Conservation, and Energy Act</p>

<i>FOOD RESEARCH AND INNOVATION FOR IMPROVED DIETS</i>					
Ireland	Food Institutional Research Measure(FIRM).		Facilitate the development of new generation of consumer-focussed products with enhanced health benefits.	Ministry of Agriculture and Food funded.	
Finland	Smart Snacks	Young people, adolescents and teenagers. Pilot project 12 schools and entire city of Kuopio.	Public and Private Collaboration to make healthy choice an easy choice, with smart snack. Best practices will then be spread to other cities.	SITRA, publicly funded foundation and it provides funding for SMEs in development of new products in line with nutrition and health as well as new production processes.	Quantitative and qualitative assessments of the programme through health indications> Aim is to be cost effective and secure best health outcomes.
<i>QUALITY ASSURANCE AND PRODUCT PROMOTION</i>					
European Union	School Fruit Scheme http://ec.europa.eu/agriculture/markets/fruitveg/sfs/index_en.htm	6-10 year old school children. 1 piece of fruit per week.	To increase fruit consumption among children for improved health and for product promotion.	DG Agriculture and Rural Development Contact: Felix.MITTERMAYER@ec.europa.eu	July 2008 undefined ending point Periodic monitoring and evaluations.
Poland	“Try Fine Food” Quality mark	Polish Population	Inform the population about high quality food products. These can be from any member of the EU.	Ministry of Agriculture and food industries for voluntarily joining the programme and adhere to the requirements list.	It will be evaluated in the future.

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	Carrot	Mothers of children 4-13 and children-4-12 and young women in Romanian and Bulgarian markets.	Improvement of carrot juices image through informing consumers of health benefits of carrot juices, particularly for children.	Agricultural Marketing Agency Contact: A. Pawlowska www.morkovi.com www.estigatapentru.ro	Evaluation through opinion research on their attitude towards the product and frequency of purchase, consumption and knowledge of carrot juices benefits in particular health benefits.
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