

**Ewa Halicka<sup>1</sup>**

**Krystyna Rejman<sup>2</sup>**

Chair of Consumption Organization and Economics

Warsaw University of Life Sciences

Warsaw, Poland

## **Fruit and vegetable promotion programs in the European Union**

**Abstract.** Promoting fruit and vegetable consumption is one of the main objectives of food and nutrition policy interventions worldwide. Public institutions, non-governmental organizations, research and health agencies together with market stakeholders undertake integrated initiatives to inform consumers about the health benefits of everyday fruit and vegetable intake. In the European Union several campaigns aimed at increasing produce demand have been launched in the nineties to improve the dietary patterns of the general population or specific consumer groups, such as children. However statistics show that fruit and vegetable intake in most EU states including new members is much below the recommended level. School-aged children, women and employees are currently the main target groups of “5 a day” information and promotion activities aimed at increasing f&v consumption. In order to secure long-term effectiveness of such programs the main determinants of consumer choice in the food market should be monitored. Broad public-private partnerships, including producers and distributors seem to be the key to strengthening the efforts at “pushing” market demand. Some of the campaigns developed and implemented in the European Union countries can be described as “5 a day” best practices. The involvement of fruit and vegetable chain participants, cooperation and evaluation of undertaken interventions are further needed in order for the programs to become more efficient and widespread.

**Key words:** fruit and vegetable market, consumption, promotion, 5 a day

### **Introduction**

According to the World Health Organization up to 2.7 million lives could be saved annually with sufficient fruit and vegetable consumption. In the World Health Report 2002, low fruit and vegetable consumption was described as one of the top ten risk factors for global mortality. The recommended daily amount is 400 g (about 150 kg per year/person), excluding potatoes and other starchy tubers, for the prevention of chronic diseases such as heart disease, cancer and diabetes [World... 2002]. Statistical calculations show that, when taking into account the loss from ‘farm to fork’, the availability of fruits and vegetables at global level is estimated at 115 kg per person/year, amounting to 75% of the amounts required [Fruit... 2003].

In order to ensure integrated and sustainable promotion of the consumption of these products WHO formed a partnership with FAO ‘WHO/FAO Fruit and vegetable Promotion Initiative’. The main goals of this joint action include promoting production and consumption of fruit and vegetables and advancing science on the areas of production, distribution and f&v benefits for health [Fruit... 2003]. In September 2004 experts from the fields of nutrition and horticulture participated in the first Joint WHO/FAO Workshop on Fruit and Vegetables for Health. General principles and examples of possible interventions

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<sup>1</sup> DrSc, Nowoursynowska 159c, 02-766 Warsaw, e-mail: ewa\_halicka@sggw.pl

<sup>2</sup> DrSc, Nowoursynowska 159c, 02-766 Warsaw, e-mail: krystyna\_rejman@sggw.pl

in various consumer groups were discussed. Since 2005 WHO facilitates the implementation of this framework through regional training workshops.

The Global Strategy on Diet, Physical Activity and Health, endorsed by the 57<sup>th</sup> World Health Assembly in May 2004, actively promotes an increase in fruit and vegetable intake for populations. Such changes were also identified as one of EU priorities in the field of health, published in May 2007 in the EU Commission's White Paper on Nutrition. The global 'institutional' willpower and strong scientific evidence creates a positive background for the development of actions aimed at increasing production and consumption in the framework of EU agricultural, research and health policies.

### **Fruit and vegetable market organization in the EU**

The economic weight of the sector of fruit and vegetable products represents an average of about 17% of total agricultural production in the EU-25. Its significance is particularly high in Greece, Spain, Portugal, Italy as well as Belgium, Hungary, Poland and the Netherlands [Analysis... 2004]. With the enlargement to 27 member states production levels surpassed 65 million tons for vegetables and 40 million tons for fruit.

The fruit and vegetable common market organization (CMO) is since 1996 concentrating partly on providing support to producers on the basis of the quantity of produce delivered to the processing industry, on aiding directly the processors and on aiding the producers via producer organizations (PO). The yearly budget for POs is currently around €700 million. Crises management tools in the f&v market include green harvesting/non-harvesting, promotion and communication tools in times of crisis, training, harvest insurance, and financing of the administrative costs of setting up mutual funds [SPEECH... 2007].

In August 2004 the European Commission presented to the Council and the European Parliament its report on the simplification of the common market organization. Among the reform's proposals were:

- abolition of processing aids and export refunds,
- increased flexibility of producer organizations (PO) rules,
- additional support (60 percent Community co-financing rather than of 50 percent) in areas where production marketed via POs is less than 20 percent, and in the new Member States, to encourage the creation of POs,
- extra support for mergers of POs and associations of POs,
- continued extra support to POs' operating in a trans-national or in an inter-branch scheme.

It is very important to underline that according to the reformed CMO, which will enter into force in 2008, POs will be able to include promotion of fruits and vegetables consumption in their operational programs. Community co-financing will be increased to 60 percent if the promotion of f&v is targeted towards school-age children and adolescents. As in previous years, market withdrawals in case of oversupply can be distributed for free to charitable organizations, schools and children's holiday camps. For this purpose a budget of 48 million euro over a six-year period will be provided.

Overall the reformed CMO will improve the competitiveness and market orientation of the f&v sector, reduce income fluctuations resulting from crises, promote consumption and thus contribute to improved public health, and enhance environmental protection.

Ms. Marian Fisher Boel, member of the European Commission responsible for Agriculture and Rural Development, admitted during her speech at a meeting of the Agricultural Committee at the European Parliament in January 2007 that in the case of the f&v market 'we are confronted with a strange kind of market failure'. According to Fisher Boel 'there is plentiful production in the European Union. And there is plentiful need for the product. But many people simply don't buy and eat as much fruit and vegetables as they need – as their waistlines and medical bills bear witness' [SPEECH... 2007].

It seems clear that as the reform of the CMO for fruit and vegetables aims to move support away from market intervention to better marketing actions of producer groups a better understanding of the consumer behavior determinants is a must.

### **Specific aspects of fruit and vegetables consumption**

According to scientific studies fruit and vegetables are major contributors to the intake of vitamin C, folic acid and potassium. About half of the daily dietary fiber intake comes from these products, which are also one of the best sources of antioxidants and may play a significant role in the fight against obesity.

FAO balance sheet data, adequate for international comparisons, show that the consumption of fruit and vegetables varies significantly in different EU-countries. It is lowest in five new Member states: Poland, Slovakia, Lithuania, Latvia and Hungary. In the case of these countries the yearly per capita supply of fruit (fresh and processed) is below 70 kg. In comparison fruit consumption is highest in Slovenia, Denmark, Greece and the Netherlands and exceeds 140 kg. The average consumption of vegetables based on FAO balance-sheet data oscillates between 100 and 120 kg/year in the EU member states. In Poland in the years 1992-2002 the highest vegetable supply level was 137 kg, lowest 98 kg.

Due to methodological issues the recommended level of total f&v consumption (per capita supply) based on balance sheet data is 220 kg. Balance sheet data calculated with the use of national production, processing, export and import indexes imply losses in the food chain. Consumption on household and individual level is about 1/3 lower.

Representative data on fruit and vegetable consumption, based on primary, questionnaire-based research is scarce. However it is essential to investigate and understand the determinants of choice of specific population groups and the factors influencing market behavior changes. Social psychological models suggest that behavior is in general determined by behavioral intention. The conceptual model for factors influencing food choice implies that food consumed by individuals depends on food supply, physiological factors and food preferences, cognitions and attitudes [Krebs-Smith and Kantor 2001]. Studies carried out in the Dutch population showed significant differences between objective and subjective estimation of intake in the case of fruit and vegetables. This indicates that because consumers often misjudge their consumption level and so are not aware that they eat too little fruit and vegetable, so education alone might not be effective.

It must be underlined that fruits and vegetables are the group of food products where consumption inequalities are at the highest level. Low income consumers tend to consume much less fruits and vegetables than higher-income ones [Combris 2007].

Analysis of the monthly Polish household budget data points also to considerable differences between the level of fruit consumption in rural and urban households [Rejman et al. 2004]. In 2002 households of workers acquired 90% of fresh and processed fruit

through purchase. In farmers' households 59% of fruit was obtained from own production (self-supply), and only 41% from the market. The identified inhibitors of consumption increase in the fruit and vegetable market in Poland are: high price margins of retailers (influencing market prices especially in the off-season months) and insufficient information on the nutritional role of fruit and vegetables [Halicka and Matyga 2006].

## **Development of '5 a day' type programs**

The '5 a day' type programs are regional, national or international multi-stakeholder initiatives aimed at increasing the consumption of fruit and vegetables to at least 5 servings per day. One serving (portion) is 80 g, i.e. one middle-sized fruit such as apple, 2 small-sized fruits (plums, kiwi), half a glass of berries, 1 tablespoon of raisins, 1/2 glass of cabbage, spinach, broccoli, cauliflower and 1/3 glass of peas, sweet corn or paprika, 1 medium tomato, 7 cherry tomatoes.

These programs, focused on whole populations or on specific target subgroups, were introduced on a larger scale in the EU in the beginning of the nineties. In the same time the American '5 a day' campaign was launched (1991) by the 'For Better Health' Foundation in cooperation with the National Cancer Institute, American Cancer Society and American Heart Association ([www.5aDay.gov](http://www.5aDay.gov)). Today the US program promotes the message that 'Fruits and veggies – more matters'. It is interesting to note, that the oldest program '5 to 10 a day – are you getting enough?' was implemented in Canada in 1972. Since 1999 it is directed to women and the communication messages relate to low cost and convenience of preparing meals with fruits and vegetables [Stables et al. 2002].

In the European Union one of the best known programs is the Danish '6 om dagen'. It is carried out by a public-private partnership with representatives from government agencies, non-governmental health organizations and the fruit and vegetable industry ([www.6omdagen.dk](http://www.6omdagen.dk)). Its partners are the Danish Veterinary and Food Administration National Board of Health, Danish Fitness and Nutrition Council, Danish Cancer Society, Danish Heart Foundation and Danish Fruit, Vegetable and Potato Board. The program was launched in 1999 as a 5-year project focusing on vegetable availability and accessibility.

It should be noticed that in the case of Denmark interventions related to promoting fruits and vegetables were tested and carried out in several settings: schools, worksite canteens and food-service industry. The worksite canteen was shown to be a promising area for promoting increased consumption of fruits and vegetables. In an intervention model personnel and management were involved in defining the scope of activities and implementation [Thorsen et al. 2005].

Currently the Danish generic action focuses mainly on school children. In 2007 a nationwide pilot of a school fruit and vegetable program called 'Frugtkvarter' was implemented. The pilot will test a new model that combines a two-month introduction period with class or school based subscription, which in a small scale pilot version showed promising results. The Ministry for Foods, Fisheries and Agriculture appropriated 8 million DKK (approx. 1 M €) for a free introduction period. This means that almost 15 % of all school aged children will receive fruit for two months starting in September 2007.

In 2006 WHO granted a best practice award to the 'Food Dudes' program implemented in Ireland. The program was developed by the Bangor Food and Activity Research Unit (BFARU) based at the University of Wales and is designed for use in primary schools. Its aim is to increase the quantity and range of fruit and vegetables that children (aged 4-12) consume as part of their diet. It incorporates three key behavior principles: repeated tasting, peer-modelling and rewards. The rewards (stickers, notebooks, pencils) were to ensure that the children begin to taste the foods.

The Food Dude Healthy Eating Program has been developed on the basis of established psychological principles and is an exciting advance in helping children to improve their diets. The program comprises video adventures featuring hero figures, called the 'Food Dudes', who like fruit and vegetables and provide effective social models for the children to imitate. The pilot scheme was so successful that the program will be introduced in 2007 to all 3300 Irish primary school with a budget of 28 million euro ([www.fooddudes.co.uk](http://www.fooddudes.co.uk)). The initiative is a EU co-financed agricultural promotion project aimed at boosting healthy eating. It is also one of the commitments made by the Commission's Platform for Action on Diet, Physical Activity and Health.

According to collected data '5 a day' type programs were also introduced in other EU countries, such as Germany, France, Hungary, Norway, Netherlands, Poland. The gained experience in Europe and other regions shows that the elements needed to develop a successful '5 a day' program include:

- governmental nutrition policy based on accepted scientific research,
- strong public/private partnerships, including a credible governmental or public entity and a committed network of food industry interests and resources,
- a simple, specific message,
- a clearly defined target audience,
- a plan for program evaluation [Stables et al. 2002].

Some of the EU initiatives seem to have strengthened in the last years, after the creation of the EU Platform for Action on Diet, Physical Activity and Health in 2005. The Platform, coordinated by the EC Health and Consumer Protection Directorate encourages and monitors such public-private partnership approaches. One of the commitments to the EU Platform for Action on Diet, Physical Activity and Health is the German '5 am Tag' program. It is aimed at the general population, but particularly children, youth and young mothers and was initiated in June 2000 by the German Cancer Society.

In Hungary the '3 x naponta az egeszseget!' program was launched by the Hungarian Fruit and Vegetable Board, a non-profit organization with more than 6,500 members. Its goal was to increase public awareness about the role of fruits and vegetables in health, encourage people to eat more produce [Stables et al. 2002].

The Norwegian 'Fruits and Veggies against cancer campaign' and Dutch 'Everyday 2+2' and 'Schoolgruiten' campaigns are also aimed at the general population, however include increased availability in chosen settings, especially schools. The Polish '5 razy dziennie owoce i warzywa' is conducted since 1996 by the 'Health Promotion' Foundation. According to data collected by the Cancer Center and Institute of Oncology in Warsaw only 5% of Poles ate the recommended 5 or more portions of fruit and vegetables daily [Janik and Zatoński 2005].

## **Perspectives of fruit and vegetable promotion programs**

The specificities of fruit and vegetables consumption, including seasonality, subjective overestimation of intake, income elasticity of demand and territorial diversity are important elements of the promotion program preparation process. However the key aspect remains long-term financing. An opportunity for fund raising lies in one of the CAP mechanisms, introduced in 2000 (Council Regulation EC Nr. 2826/2000 of 19 December 2000 on information and promotion actions for agricultural products). In the framework of the Common Agricultural Policy activities aimed at promoting food products can be financially supported by the EU. These include measures that consist of public relations, promotional or publicity actions, especially in terms of quality, hygiene, food safety, nutrition, labelling, animal welfare or environment-friendliness of their production. The EU finances 50% of the cost of these measures, the remainder being met by the professional/inter-branch organizations which proposed them and/or by the Member States concerned. Since 2001 the European Commission has approved such 23 programs, of which only a few function on the fruit and vegetable market. The biggest f&v market action in which EC's contribution was almost 5 million euro is a three-year program, prepared by Interfel (France). The budget goes to communication activities such as advertising ('10 par jour' campaign), actions at distribution points, f&v consumer services and internet sites. In Poland an information program promoting frozen food (including fruits and vegetables) prepared by the Frozen Food Association (Stowarzyszenie mrożonej żywności) received support of 195 thousand euro.

In the reformed fruit and vegetable common market organization there will be an additional €6 million under the general promotion regulation for the promotion of f&v targeted at children in educational establishments. There will be also an €8 million budget for free distribution of f&v to schools, hospitals and charitable bodies, which will be 100 percent financed by the Community up to a limit of 5 percent of the quantity marketed by a PO. The Council asked the Commission to carry out a feasibility study into the creation of a school fruit and vegetable scheme. This work will begin as soon as possible [SPEECH IP... 2007].

Further research is needed to evaluate the f&v market situation and the development of 'health in all policies' EU priority as well as the effectiveness of the interventions aimed at increasing consumption in specific consumer groups.

An important role in this field may be played by IFAVA (International Fruit and Vegetable Alliance) which enables its members to share their experiences, whether initiating or strengthening fruit and vegetable promotion programs within their own countries. Members have access to the latest scientific findings and current information on communication, strategy and policy of increasing fruit and vegetable consumption ensure the practical implementation of this science.

One of IFAVA's roles is to supply leadership to organizations that are involved in the non-commercial marketing and promotion of vegetables and fruit with a '5 a day' type programs operating at a national or multi national level, including but not limited to Trade Corporations, Health Units, governmental and quasi-governmental organizations, non-governmental organizations and registered not-for-profit organizations. Its role is also to serve as liaison with the World Health Organization (WHO) and with other international offices of organizations such as World Heart Federation and International Union against Cancer. IFAVA also pursues a range of financial management models, including:

- self-funding: through a yearly membership support and activities,
- grant writing,

- fundraising modeling: pursuing approaches to sponsorship and other non-dues sources of funding to build long-term program sustainability,
- economic impact modeling: sharing information that demonstrates return on investment of '5 a day' type campaigns, for both the public and private sectors (www.ifava.org).

## Conclusions

European Union institutions have acknowledged the health promoting role of fruit and vegetables and the importance of adequate consumption in reducing chronic disease risk. To persuade consumers to 'choose a diet with plenty of vegetables and fruits' is now a challenge not only faced by public health nutritionists, but also economists and policymakers.

Implementing public-private activities aimed at nutrition education and promotion of fruit and vegetables is seen as a method to successfully increase demand, especially among children. Such interventions should improve the present food patterns and consequently the health indicators of the population. However traditional health education strategies have often failed to create sustainable changes in diet behaviour. Studies in the EU countries (Denmark, France, the United Kingdom, Italy) have shown that increasing availability at the workplace and in schools can lead to immediate, positive changes in fruit and vegetable intake. In order to achieve significant changes in dietary behaviour, it has been recognized that provision of information is not enough [Eertmans et al. 2001]. In some cases health promoting initiatives need systematic economic intervention to lower the cost of fresh produce through subsidies, reduced taxes or increased budgets for promotion. They may also include strategies to improve availability and access to fruits and vegetables through broader distribution channels, improved marketing and fiscal incentives for retailers, especially in low income areas [Drewnowski 2007].

Although the European Commission has in previous years granted financial support for the dissemination of nutritional knowledge [Fruit... 2002], a more systematic and coordinated approach is needed. Bringing together all relevant players active at the European level and strengthening health-oriented interventions in the food market is the goal of the EU Platform for Action, created in 2005. It seems that in many countries the Platform has stimulated the creation of cooperative attitudes between producers and other partners, such as non-governmental organizations, regional governments, public institutions (schools, universities) and the media. The effectiveness of commitments undertaken in the EU Platform's framework and impact of promotion activities on consumer behavior will have to be further monitored.

## References

- Analysis of the common market organization in fruit and vegetables. [2004]. [http://eumed-agpol.iamm.fr/doc/analysis\\_commonmarket\\_fruitandvegetables.pdf](http://eumed-agpol.iamm.fr/doc/analysis_commonmarket_fruitandvegetables.pdf)
- Combris P. [2007]: The price of fruit and vegetables is a barrier to consumption: reality or myth? [In:] The role of fruit and vegetables in the fight against obesity, 56-57. Conference, Aprifel and SANCO, Brussels.
- Drewnowski A. [2007]: Public initiatives to overcome barriers to dietary change The role of fruit and vegetables in the fight against obesity. Conference, 64-65. Aprifel and SANCO, Brussels.

- Eertmans A, Baeyens F, Van den Bergh O. [2001]: Food likes and their relative importance in human eating behaviour: review and preliminary suggestions for health promotion. *Health Educ. Res.* 16, pp. 443-456.
- Fruit and vegetable markets* [2002]. 141, Agra Europe, London.
- Fruit and vegetable promotion initiative. [2003]. WHO. [www.who.int/dietphysical activity/fruit/en](http://www.who.int/dietphysicalactivity/fruit/en)
- Halicka E. [2004]: Warzywa i owoce w programach profilaktyki chorób żywieniowo zależnych w krajach rozwiniętych. [In:] Fizjologiczne uwarunkowania postępowania dietetycznego, Wydawnictwo SGGW, Warsaw, pp. 304-310.
- Halicka E. [2006]: Aktualne zalecenia żywieniowo-zdrowotne dotyczące spożycia owoców i warzyw. *Zdrowie Publiczne*, vol. 116, no. 1, pp. 138-141.
- Halicka E., Matyga M. [2006]: Analiza czynników kształtujących zachowania kobiet w wieku 25-55 lat na rynku świeżych owoców. *Handel wewnętrzny*, special issue Konsumpcja żywności – zwyczaje, uwarunkowania, trendy, IRWiK & SGGW, pp. 52-56.
- Halicka E., Rejman K. [2003]: Zmiany w konsumpcji warzyw i owoców wyzwaniem dla polskiego rolnictwa. *Więś i Rolnictwo* 121, 4, pp. 112-125.
- Janik K, Zatoński W. [2005]: Fruit and vegetable intake in Poland in 2002. [In:] Culinary Arts and Sciences – Global and National Perspectives. J.S.A. Edwards, B. Kowrygo, K. Rejman (eds). Wydawnictwo SGGW, Warsaw, pp.470.
- Krebs-Smith S.M., Kantor L. [2001]: Choose a variety of fruits and vegetables daily: understanding the complexities. *Journal of Nutrition*, 131, 2S-I, pp. 487-501.
- Rejman K., Halicka E., Januszewska R. [2004]: Sources of food provisioning in rural households at the turn of the XXI century. *Więś i rolnictwo* 125, 4, pp. 145-159.
- SPEECH IP/07/810. [2007]. <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/810&format=HTML&aged=0&language=EN&guiLanguage=en>.
- SPEECH/07/31.[2007]. <http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/07/31>.
- Stables G., Saunders Goodman L., Stunge Meyer M., Disifra L. et al. [2002]: International 5ADay programs: A smorgasbord. [www.5aday.gov/pdf/masimaxmonograph.pdf](http://www.5aday.gov/pdf/masimaxmonograph.pdf)
- Thorsen A., Jorgensen M., Lasssen A., Mikkelsen B. [2005]: Strategies to promote healthier eating at worksites – analysis and experiences from a social shaping perspective. [In:] Culinary Arts and Sciences – Global and National Perspectives. J.S.A. Edwards, B. Kowrygo, K. Rejman (eds). Wydawnictwo SGGW, Warsaw, pp. 131-135.
- World Health Report 2002. [2002]. Reducing risks, promoting healthy life. WHO, Geneva.