



## **Comité Européen des Fabricants de Sucre**

### **CEFS response to the European Commission's Green Paper**

**“Promoting healthy diets and physical activity: a European dimension for the prevention of overweight, obesity and chronic diseases”**

**29<sup>th</sup> March 2006**

In December 2005, the EU Commission published the Green Paper on “*Promoting healthy diets and physical activity: a European dimension for the prevention of overweight, obesity and chronic diseases*“ and called for comments on it.

CEFS (Comité Européen des Fabricants de Sucre) represents the interests of all sugar manufacturers and refiners in the EU and Switzerland among the European Institutions (Council of Ministers, European Commission, European Parliament, Economic and Social Committee, etc.) and among different international organisations (FAO, WTO, etc.).

The sugar industry sees itself as being especially affected by the Green Paper insofar as the subject of sugar and foods containing sugar is addressed at various different points. The Paper can be interpreted as saying that the consumption of sugar and foods containing sugar is a cause of chronic diseases and of the increase in overweight and obesity which has been observed in recent years.

Increased overweight and obesity rates, both in adults and children, are not in dispute. For this reason, our Members support different kinds of activities at national level to promote healthy lifestyles and to tackle this complex problem.

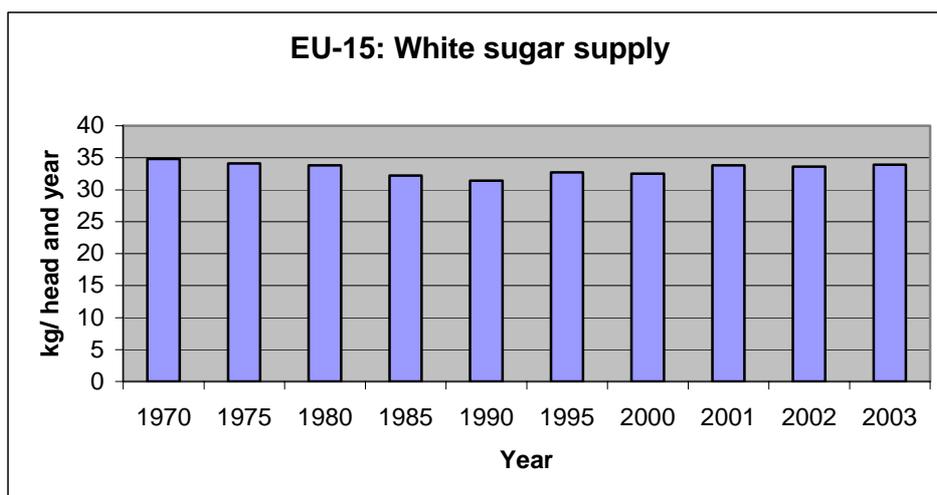
However, we would like to express several comments on the Green Paper that, for example, gives the impression (Annex 2, no. 7) that sugar plays a greater role in today’s diet than it used to and that the risk of suffering severe chronic diseases has increased as a result. Neither statement is correct.

## Sugar sales in Europe unchanged for many years

There has been no such increase in sugar supply in Europe since the 1970s. The agricultural statistics of FAO provide us with exact data on this (Table 1 & Figure 1) <sup>1</sup>. The supply of sugar in Europe (EU-15) has been stable and has, on average, amounted to approx. 33 kg per capita and year between 1970 and 2003. Other sources, such as DG Agriculture (Table 2 & Figure 2), confirm that general trend <sup>2</sup>.

Year	EU-15: White sugar supply kg/head and year
1970	34,8
1975	34,1
1980	33,8
1985	32,2
1990	31,4
1995	32,7
2000	32,5
2001	33,8
2002	33,6
2003	33,9

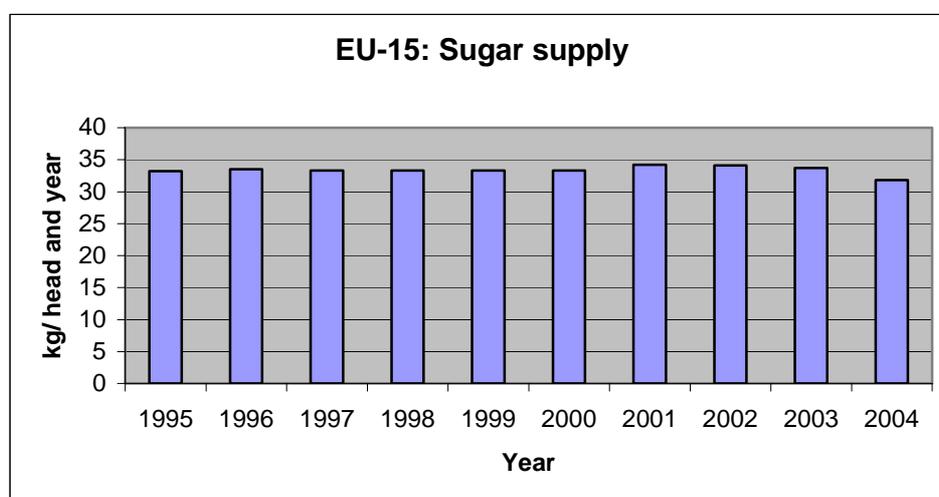
**Table 1 :** White sugar supply in EU-15 (kg per caput and year) [Source: FAO statistical data base ; Food Balance Sheets (3 rd March 2006). Data of raw equivalent sugar were converted into white sugar equivalents by 100:92]



**Figure 1:** EU-15 per capita availability of sugar from 1970 to 2003 (FAOSTAT Nutrition, <sup>1</sup>)

EU-15	
year	sugar supply (kg/head and year)
1995	33,2
1996	33,5
1997	33,3
1998	33,3
1999	33,3
2000	33,3
2001	34,2
2002	34,1
2003	33,7
2004	31,8

**Table 2:** White Sugar supply for human consumption in EU 15 (DG Agriculture, <sup>2</sup>)



**Figure 2:** Stable trend in EU sugar supply from 1995 to 2004 (DG Agriculture <sup>2</sup>)

The only aspect that has changed during this period is the ratio of household sugar to sugar used for processing. The vast majority of sugar is now processed in the food industry whereas the amount used by households has decreased by virtually the same amount. The rationale behind this shift is rather simple: consumers prefer convenient and ready-to-use food products. Of decisive importance, however, is the fact that,

overall, the amount of sugar available to be consumed has remained more or less unchanged for 30 years.

The overall market for all caloric sweeteners in Europe includes the sale of other caloric sweeteners such as glucose and isoglucose. Overall, there has been no significant change in the availability of caloric sweeteners in the 10-year period up to 2003 (Table 3). Therefore, approximately 41 kg/caput/year of caloric sweeteners are available in Europe <sup>3</sup>.

Year	Total caloric sweeteners (kg per caput and year)
1993	39.9
1994	39,4
1995	39,9
1996	40,1
1997	39.9
1998	40.6
1999	40,7
2000	41,1
2001	41,1
2002	41,0
2003	41,0

**Table 3:** *Trend of total caloric sweeteners in EU-15 from 1993 to 2003*  
(Source: SUBEL <sup>3</sup>; 2005)

### **Actual consumption is even lower**

To assess a food in terms of health, it is not only the amounts available in the shops that are of significance, but the actual amounts consumed. Consumption figures for a given product must be based on individual food intake surveys and not on availability studies. Besides, the French example is rather significant : the French “Centre d’Etudes et de Documentation sur le Sucre” has highlighted the gap between sucrose

availability (35 kg/caput/year) and sucrose actual consumption (27 kg/caput/year)<sup>4</sup>, on the basis of the results of a national consumption survey. In Europe, the DAFNE (Data Food Networking) program ([www.nut.uoa.gr](http://www.nut.uoa.gr)) aims at describing the dietary patterns of 10 European countries as well as their socio-demographic determinants, using comparable countries' data collected in the late 1990's through national household budget surveys<sup>5</sup>. As far as "sugar & sugar products" are concerned, the DAFNE databank calculated the average consumption (for the 10 DAFNE countries) as 70g/day.

In a country like Germany, the evaluations of carbohydrate and sugar consumption from the last three consecutive household budget surveys (Einkommens- und Verbrauchsstichproben - EVS) from 1988, 1993 and 1998 show that the average consumption of saccharose over this 10-year period was stable<sup>6</sup>. The average sucrose intake was around 68 to 78 g per day for men and 60 to 73 g per day for women during this ten-year period. This average sugar consumption of approximately 70 g per person and day is approximately 30 % below the available amount of sugar which is, according to sales statistics, about 96 g per day. The 2004 German Nutrition Report commissioned by the Federal Government (Ernährungsbericht 2004,<sup>7,8</sup>) also provides data obtained in respect of sucrose consumption in the different age groups, based on the data of the household budget surveys 1998, on estimations and on calculation models.

However, in recent years, numerous consumption assessments of the DONALD Study (Dortmund Nutritional Anthropometric Longitudinally Designed Study) carried out in Germany by the Research Institute for Child Nutrition (Forschungsinstitut für Kinderernährung), Dortmund, have become available; these provide information on the German trends in nutrient intake for 2 to 18 year-olds during the 15 years from 1985 to 2000<sup>9</sup>. The sugar consumption remained constant during this period. Moreover, a British nutrition survey dealing with schoolchildren did not show an increase in either total sugars or total calories intake<sup>10</sup>.

The supposition that more sugar is consumed today in Europe than in the past is disproved by the sales statistics, the consumption studies, evaluations of the household budget surveys, and various different trend analyses.

### **Consumption in the USA is considerably higher**

We would also like to briefly examine the development of the sweetener market in the USA as reference is often made to the development in the USA in the discussion on causes of overweight, obesity and chronic non-communicable diseases.

It is only possible to a limited degree to make comparisons with the situation in the USA. For instance there are approx. 50 % more caloric sweeteners available per capita of the population in the USA. According to data from the database of the Economic Research Service (ERS) at the United States Department of Agriculture (UDSA) <sup>11</sup>, the supply of caloric sweeteners has risen since the middle of the 1960s from approx. 50 kg/capita year to 63.5 kg/capita in 2003. Additionally, the US American market does not just differ in respect of the quantitative supply of caloric sweeteners, but also in terms of the composition of this market. The 63.5 kg of caloric sweeteners per person comprise 27.2 kg of sucrose obtained from sugar beet or sugar cane, and a total of 35.9 kg of sweeteners from corn starch such as the “fructose syrups” (High Fructose Corn Syrups), glucose syrups and dextrose. The supply of sucrose was already significantly higher 40 years ago in the USA than in Europe, with approximately 50 kg per capita and year. The percentage of the sweetener market made up by sucrose then decreased in favour of High Fructose Corn Syrups. The sweetener market has therefore undergone a completely different development in the USA, a development which cannot be compared with that in Europe.

### **Sugar consumption is not a risk factor**

In connection with the assertion made in the Green Paper that today’s sugar consumption increases the risk of the most significant chronic diseases, we would like to refer to the comprehensive and still the most up-to-date assessment of the influence of sugar on health risks by the Food and Nutrition Board of the Institute of Medicine in the USA <sup>12</sup>. In order to draw up “Dietary Reference Intakes“, investigations were carried out *inter alia* into whether there are upper limits for the consumption of the investigated nutrients beyond which health impairments can be expected. After all

available scientific literature had been evaluated, it was ascertained that, based on the data available on dental caries, behaviour, cancer, risk of obesity and risk of hyperlipidemia, there is insufficient evidence to set an upper limit for the consumption of sugar (monosaccharides and disaccharides, either for total or added). It is only with a very high intake of sugar of over 25 percent of total energy intake that there could be the possibility of an insufficient intake of micro-nutrients for certain population groups. This limit value does not represent a consumption recommendation and should not be understood to constitute a licence for unbridled sugar consumption. Similarly, a recent review conducted for WHO<sup>13</sup> concluded that there was no convincing or probable evidence that sucrose consumption in the diet significantly affects the risk of any lifestyle disease, other than dental caries. And in this case frequency of consumption, not amount consumed is the dominant factor.

### **Evidence for the foundations of the Green Paper**

We know about the problems of the increase in overweight and obesity, both in adults and in children, and the risk factors resulting from this. But some of the foundations, proposals and arguments put forward in the Green Paper do not appear to us to be based on evidence.

- In chapter I under point 1.1, for example, the following is stated: *“Unhealthy diets and lack of physical activity are the leading causes of avoidable illness and premature death in Europe“*. This is surprising in view of the current discussion about the effects of an aging population. In almost all Members States of the EU 25, the life expectancy in the period from 1960 to 2002 has risen by several years (see report on *The Social Situation in the European Union 2004*, fig. 60 and fig. 61 )<sup>14</sup>. The EU Commission itself notes, in the report *The social Situation in the European Union 2003*, that *“on average the state of health of EU citizens is improving. In 2000 the average life expectancy at birth was 78 years for the EU 15 (75 for men and 81 for women). This means that the EU 15 were above the USA (74 for men and 80 years for women)”* <sup>15</sup> .
- In respect of the foundations listed in the appendices as well, the Commission bases itself in some cases on suppositions which in our view are inaccurate or

outdated. The figures for selected risk factors listed in fig. 1, for example, refer to the so-called “European Region“ of the WHO. The “European Region“ of the WHO does not just cover the Member States of the EU; it is instead much wider and also includes countries such as Georgia, Uzbekistan, Kazakhstan, the Kyrgyz Republic, Turkmenistan, Belarus, Ukraine and the entire Russian Federation. The insufficient consumption of fruit and vegetables mainly by the eastern parts of this WHO region, for example, has a formative influence on this risk stated by the WHO <sup>16</sup>.

- The scientific basis used for Annex 2 “*Relationship between diet, physical activity and health*” is mainly based on a single report of a three-day WHO/FAO Expert Consultation <sup>13</sup> that has been subject to considerable criticism due to its conclusions and recommendations which are often still – because they are not based on evidence – the subject of controversial discussion <sup>17</sup>. As far as sugars are concerned, we would like to recall that even Dr Jacques Diouf, Director General of the FAO, admitted at the occasion of the release of the Report (Rome press release, 23rd April 2003) that the recommendations for sugars are arbitrary and not based on scientific evidence.

### **Sugar and overweight**

In the Green Paper, sugar and foods containing sugar are linked directly or indirectly to overweight and obesity as well as chronic diseases, and a restriction in the consumption of these foods is proposed as a mean of avoiding overweight and reducing risk. This may give the incorrect impression that sugar has specific fattening properties.

As correctly described in Annex, 2, no. 14, overweight is the result of a surplus of energy ingested via the diet when compared with energy expenditure. The sources of energy (nutrients) in the food do not play an influential role; it is the total energy content alone which is the dominant factor. However, the individual nutrients have significantly different energy content. Fats supply 9 kcal/g, alcohol 7 kcal/g, protein and carbohydrates each 4 kcal/g. Sugar is a carbohydrate and consequently supplies 4 kcal/g. As already shown, the availability/consumption of sugar has been stable for

decades. The increase in overweight in recent times cannot, therefore, be attributed to the sugar consumption. The report *Diet, nutrition and the prevention of chronic diseases: report of a joint WHO/FAO expert consultation*<sup>13</sup>, which is cited many times by the Commission, also comes to the conclusion that there is no evidence that the amount of sugar consumed plays a role in the development of obesity.

The discrepancy between an unchanged consumption of food energy and increasing body weight has been widely documented, e.g. in the 2004 German Nutrition Report<sup>18</sup>. This study found that food energy intake during the reporting period was consistently below recommended levels but despite this, the number of overweight people had increased. As a result, the estimate of energy expenditure through physical activity was reduced for the current calculation of recommended energy intake. This reflects the fact that it is clearly lower energy expenditure rather than an increased energy intake via the diet which is decisive for the development of overweight.

### **Overweight people do not consume more sugar**

Investigations in the field of dietary epidemiology showed that those people who made particular efforts to limit their sugar consumption were more likely to be overweight<sup>19,20</sup>. Conversely, carbohydrate consumption and also sugar consumption are negatively correlated to the Body-Mass Index (BMI) and skin-fold thickness<sup>21</sup>. Numerous national and international studies show that individuals with higher sugar consumption in general have a lower Body-Mass Index. The National Consumption Study for Germany (Verzehrsstudie Deutschland (1985-1989)) has also shown that people with an above-average sugar consumption had a lower Body-Mass Index than people who consumed less sugar<sup>22</sup>. This applies in the case of children, young people and adults, i.e. throughout all age groups, and generally does not depend on the form in which the sugar is consumed e.g. whether it is ingested as a drink or in food. Similar results have been reported in UK national surveys<sup>23</sup>.

This fundamental observation has been made in numerous consumption studies: the higher the consumption of sugar, the lower the prevalence of overweight and obesity and the lower the consumption of fat. Higher fat consumption was accompanied by a higher occurrence of overweight and obesity. These links are shown particularly

impressively by the data from over 11000 adults which were used for the Scottish Heart Health Study (SHHS) and the first Scottish MONICA study of the WHO (MONICA: monitoring trends and determinants in cardiovascular disease) <sup>24</sup>. The higher the sugar consumption, the lower the occurrence of overweight and obesity. In the case of children as well, in Germany, no differences were found in the consumption of foods containing sugar in relation to their bodyweight.

The evaluations of the dietary habits of overweight and normal-weight children in school-entrance examinations did not result in any differences in consumption frequency for chocolate, sugared drinks, cake or crisps, peanuts and biscuits <sup>25</sup>.

The Kiel Obesitas Prevention Study (Kieler Obesitas-Präventions-Studie - KOPS) reported in 1998 <sup>26</sup> in respect of 5 to 7-year-old children that, on average, overweight children have a similar pattern of consumption to normal-weight or underweight children.

A survey of the "Health Behaviour in School-aged Children Study" (HBSC), which was commissioned by WHO Europe in 2001/2002 and which dealt with 11 to 15-year-old teenagers in 15 States of Europe and in the USA, investigated the link between BMI and dietary habits <sup>27</sup>. In the questionnaire, the pupils were asked to give information on the frequency of the consumption of fruit, vegetables, sweets and soft drinks which contained sugar. These data were linked to the weight status which had been determined. The analysis showed that there were no statistically significant links between overweight and the increased or decreased consumption of certain foods. Only normal-weight children showed a somewhat greater consumption of sweets.

It is also not necessary to do without sugar in slimming diets or for weight stabilisation <sup>28</sup>. A 6-month dietary intervention study sponsored by the EU Commission which had over 400 participants from five European countries showed that carbohydrate-rich, low-fat diets with varying sugar content were favourable for long-term weight management. The sugar percentage is irrelevant in this regard <sup>29</sup>. However, it was seen that the lower the fat content was, the lower was the energy density of the food consumed; this also did not depend on the sugar content. As the test persons were free to choose how

much they ate, the weight reductions achieved show that a higher sugar content in the diet does not lead to an increase in hunger or a higher energy consumption.

### **Drinks containing sugar**

At various points in the Green Paper, the consumption of sugar-sweetened drinks is linked with overweight. There are indications, in particular from American literature, mainly based on study reports of one research group, that overweight is accompanied by a higher consumption of soft drinks<sup>30,31</sup>. These studies have also attracted attention in Europe, although there are reasonable grounds for having doubts about the transferability of the results. Ludwig et al.<sup>30</sup>, for example, observed in a 19-month prospective study of 11 to 12-year-old children that there was a correlation between the consumption of sugar containing soft drinks and an increase in bodyweight. A closer look at the results showed that this statement cannot simply be accepted as accurate, as the number of overweight children only increased from 150 at the beginning to 152 at the end of the study. However, thirty-seven of the total of 548 children became overweight during the study. It is therefore obvious that there were not just children who became overweight during the investigation period but also 35 children who returned to normal weight. No further information was given on the diet of these children. Also, only the drinks sweetened with sugar were taken into account in this study; fruit juices were not considered although they do not differ from soft drinks in terms of energy and sugar content. Further changes in the study participants' diet as a whole were also noted.

A later study by the same research group failed to find a significant effect on body weight of replacing all regular soft drink consumption by adolescents with low-calorie versions over 25 weeks<sup>32</sup>. Soft drinks consumption in preschool children was not associated with changes in weight and body mass index<sup>33</sup>.

At present, therefore it does not appear possible to draw firm conclusions on the utility of altering soft drinks consumption as a means of influencing body weight as there are contradictory research results.

The body's regulatory mechanisms of hunger and satiety are obviously very complex. It has, as yet, not been clarified what influences different foods, drinks and nutrients have. This is still a subject of research <sup>34,35</sup>, so that it is not justified to be one-sided in attributing causes.

When considering such investigation results from the USA, it must be remembered that the soft-drink consumption in Europe differs greatly from the conditions in the USA. In the USA the supply of soft drinks is more than twice as high as in Europe. According to the data of the Economic Research Service (ERS) of the United States Department of Agriculture <sup>36</sup>, the per capita consumption in 2003 of "regular carbonated soft drinks", i.e. of sugar-sweetened soft drinks, amounted to 133,6 l and to 42 l in the case of diet soft drinks. In Europe, the DAFNE databank provides per capita consumption figures of 51 l/year for calorie containing soft drinks <sup>5</sup> (for the 10 DAFNE countries and during the late 1990's).

### **Sugar and chronic diseases**

Annex 2, no. 1 to 4 of the Green Paper lists the following chronic non-communicable diseases as major problems and also lists the dietary factors responsible for them:

- Diabetes Type 2 – prevention and treatment: low-fat diets with a low percentage of saturated fatty acids.
- Cardiovascular diseases – dietary risk factors: high consumption of saturated fat and salt.
- Cancer - possible protection by means of sufficient consumption of fruit and vegetables.
- Osteoporosis – claim that dietetic measures for the prevention of other chronic diseases also protect against osteoporosis.

Other dietary risks are listed under no. 7 and surprisingly include added sugars:

*"Dietary risk factors include shifts in the diet structure towards diets with a higher energy density (calories per gramme) and with a greater role for fat and added sugars in foods; increased saturated fat intake (mostly from animal sources) and excess intake of hydrogenated fats; reduced intakes of complex carbohydrates and*

*dietary fibre; reduced fruit and vegetable intakes; and increasing portion sizes of food items”.*

It is to be noted that the Commission gives no evidence for these suppositions. For Europe, at least, there are no grounds for targeting added sugars consumption. We have already referred to the stable sugar consumption over recent decades and the lack of evidence for the influence of sugar consumption on risk factors of chronic diseases as stated in the assessments of the Institute of Medicine of the USA <sup>12</sup>, which were based on all available scientific literature.

Furthermore according to the FAO Statistical database on nutrition the supply of fruits and vegetables has increased in the EU-15 from 199 kg in 1970 to 243 kg in year 2003 <sup>1</sup>.

Sugar is a carbohydrate which contains no other nutrients. It is therefore feared that a high proportion of sugar in the diet may lead to insufficient supply of vitamins and minerals and that a high consumption of sugar and foods containing sugar may displace other foods rich in nutrients.

There are now extensive data on quantitative provision with vitamins and trace elements, obtained in various national and regional consumption surveys and covering practically all age groups, from children and young people to adults. These consumption surveys show that a diet containing sugar is by no means inferior from the point of view of micronutrient intake <sup>37,38</sup>.

These detailed analyses of the consumption surveys have shown a fundamental principle in the relationship between a diet containing sugar and the intake of essential nutrients. The nutrient density – this is taken to mean the amount of an essential nutrient per 1000 kcal – is not diminished over a large range of sugar content of the diet <sup>39</sup>.

The German National Consumption Study (Nationale Verzehrsstudie Deutschland, including the VERA study, does not provide any indications that sugar consumption has a negative effect on vitamin supply. Overall, large sections of the population today

are consuming sufficient amounts of vitamins according to chemical blood analyses<sup>40,41, 42</sup>.

The evaluation of the German DONALD study as well shows that the sugar content of the diet has little influence on the quality of the diet.

Given the present consumption habits, it would seem that, given the usual sugar consumption in Europe, adults and children meet their requirements regarding essential nutrients, vitamins, minerals and trace elements.

Sweetening with sugar within the wide range of sugar consumption observed today does not lead to a lack of essential nutrients. Often, the addition of sugar can promote consumer acceptance of foods. For example, yoghurt or breakfast cereal, which would otherwise be less attractive in terms of taste, but which are desirable from the point of view of nutrition physiology.

In the group of "*energy dense snacks*", the role played by products containing sugar in supplying fat in the daily diet is overestimated in terms of quantity. As shown by evaluations of the data of the VERA study<sup>40,42</sup> and the 1998 Federal Health Survey (Bundes-Gesundheitssurvey 1998) carried out by the Robert Koch Institute<sup>43</sup>, a mere five food groups make up 75 % of the fat intake in Germany. Foods containing sugar are not among these five food groups. In contrast, less than 5% of the fat intake originates from confectionary. Sugar or the palatability of foods containing sugar can therefore be excluded as a significant cause of high fat consumption. Similar data were reported from UK<sup>44</sup> and from Belgium<sup>45</sup>.

An international expert body of the FAO/WHO ("Preparation and use of food-based dietary guidelines") came to the same view after evaluating the extensive international literature: "*there is no evidence that foods high in sugar contribute significant amounts of fat to the diet. Furthermore, total sugar intake is commonly inversely related to total fat intake. Moderate intakes of sugar are therefore compatible with a varied and nutritious diet*"<sup>46</sup>.

### **Are reduced-sugar products the solution?**

As part of the discussion about ways to prevent overweight and chronic diseases, it was also suggested that foods should be reformulated and, for example, the sugar content in foods reduced. However, this proposal, which at first sight seems plausible, ignores important issues. Sugar is not only used in the preparation of foods on account of its sweetening properties, but also for its many technological properties. When calling for the sugar content of foods to be reduced it should be remembered that this frequently does not result in a reduction in calories.

Reducing calories by replacing the sucrose in drinks with sweeteners or by diluting the drinks with water is easy to do. This is only a question of taste. In contrast to this, a reduction of the sugar content in carbohydrate-rich foods, such as in breakfast cereals, does not produce reduced-calorie products. In practice the sugar calories are replaced by other carbohydrate calories. It is also not possible to achieve any reduction in energy by means of increasing sweetness with intense sweeteners. In the case of foods containing fat, the percentage of fat calories increases when sugar is reduced. In many cases, the fat content, and consequently energy content, of reduced-sugar products is increased to improve their acceptance, e.g. in the case of yoghurt.

### **Concluding remark**

We welcome the Commission's approach to accept only evidence-based proposals for implementation through political action. This includes carrying out scientific checks of the foundations which are used and subjecting unproved suppositions to a careful examination.

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