Overview of Key Scientific Research Results on the Choices Programme and Positive Front-of-Pack Labelling
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1 Background on the Choices Programme

In 2004, in an effort to stem the rising tide of non-communicable diseases, the World Health Organization (WHO) called upon the food industry to help make healthy choices more available and easier for consumers to select. In response, the Choices International Foundation was formed in 2006 with three fundamental objectives:

1. To encourage food companies to improve the composition of their products, thereby increasing the availability of healthier foods and beverages.

2. To help consumers quickly identify healthier options when making food purchases.

3. To encourage healthy product promotion.

To achieve these objectives, the Choices International Foundation relies upon a set of product-group-specific nutrition criteria, developed using independent science and international dietary guidelines as their basis. The criteria can be used as benchmarks for product reformulation, healthy product offerings and front-of-pack labelling. Products that meet the Choices criteria are eligible to carry the Choices logo or, in some cases, another locally-relevant logo.

The criteria are periodically reviewed and revised by an International Scientific Committee, comprised of leading independent scientists with backgrounds in nutrition, food technology and consumer science. The methodology behind the product criteria was published in the European Journal of Clinical Nutrition in 2011. Food composition data were used to develop nutrient criteria and calculate the potential impact of the Choices Programme. Further details regarding the role of the Choices Programme, as well as the characteristics and availability of databases for its substantiation, have also been published.
2 Introduction to this document

In parallel to the Programme’s development and implementation, there has been ongoing independent scientific research into the effects of the Choices logo. In the Netherlands, the first country to introduce the Choices logo, Professor Jaap Seidell and his team at the VU University Amsterdam studied the effects relating to the introduction of the “Ik Kies Bewust-logo” (i.e. the Dutch version of the Choices-logo, subsequently called ‘het Vinkje’).

More recently, this research – in conjunction with other studies – has yielded important information about positive front-of-pack (FOP) logos and their effects on consumers and producers. This document provides an overview of the relevant studies on Choices as well as other positive, interpretative FOP logo programs.

3 Impact of the Dutch Choices logo on product development and innovation

3.1 Impact on product composition
One of the aims of the Choices Programme is to stimulate product innovation towards healthier products. As such, a study was conducted in the Netherlands to determine whether the Choices logo encouraged the development of healthier products. (4) Companies participating in the Dutch Choices Programme were asked to provide data on the composition of old and new products, which were then assessed to determine the extent to which new or reformulated products have an improved composition in comparison to similar products or replacement products.

For reformulated products, the results indicated a significant reduction in sodium, saturated fat and added sugar in certain products. For example, the sodium in reformulated soups was reduced by 14%, added sugar in dairy was reduced by 75% and saturated fat reduced by 30%. Fruit juice also had 53% more fiber. In newly-developed products, sodium, saturated fat and added sugar were often reduced compared to similar products (e.g. sodium in processed meats, by 38%, saturated fat by 46%), while the sandwiches had 24% less sodium and 33% more fiber (figure 1).

3.2 Impact on expected and actual taste perception
Other research examined the expected and perceived saltiness and liking of soups with different expressions on the label. (5) Next to a control label, the following three conditions were compared to each other: 1) the Dutch Choices logo; 2) a reduced-salt claim; and 3) a Choices logo and a reduced-salt claim together. The results suggested that consumers expected the salt taste intensity (P < 0.001) to be lower when the label stated “now reduced in salt”, compared to the soup without such a label. Furthermore, consumers expected to like the soup with the Choices logo more than the same soup with both the logo and the “now reduced salt” label (P = 0.1). After consumers tasted the soups, no differences in liking or desire were found between the soups with the different labels.

FIGURE 1: POTENTIAL IMPACT OF CHOICES LOGO ON PRODUCT COMPOSITION IN THE NETHERLANDS

SOUPS
- 14% LESS SALT

FRUIT JUICE
- 53% MORE FIBER

DAIRY
- 75% LESS SUGAR
- 30% LESS SATURATED FAT

NEWLY-DEVELOPED PRODUCTS

PROCESSED MEATS
- 38% LESS SODIUM
- 46% LESS SATURATED FAT

SANDWICHES
- 24% LESS SODIUM
- 33% MORE FIBER
4 Impact of the Choices logo on consumer behavior

4.1 Impact of the Choices logo on purchasing behavior in the supermarket

Three studies specifically address the effect of the Choices logo on consumer behavior in the supermarket:

Two recent studies, part of the EU-funded CLYMBOL research project, examined purchasing behavior of consumers in the Netherlands and Denmark. Preliminary results, based on observed purchase data, show that positive FOP logos may drive purchasing decisions. Researchers compared data before and after the launch of Choices and Keyhole logos (figure 2) in the Netherlands and Denmark, respectively. They found that average consumers in both countries may be willing to pay more for products displaying the logo, suggesting the logos provide valuable information. Preliminary data show that consumers in the Netherlands responded positively to this guidance and increased their purchases of Choices logo-bearing products. Data may also suggest that the logo may have a greater effect in product groups containing a mix of “healthy” and “unhealthy” products, where additional consumer guidance is needed. (6) These studies will be published in peer-reviewed journals in the course of 2018.

A previous study examined actual use of the Choices logo. (7) Approximately 400 supermarket shoppers were interviewed after purchasing groceries regarding their attitudes towards healthy eating. Researchers also recorded the number of products the shoppers purchased bearing the Dutch Choices logo. Results showed that respondents who reported consciously buying products bearing the logo bought more of these products than those who indicated not consciously buying products with the logo. Respondents with an awareness of health, weight and nutritional information actively bought more products carrying the logo, while respondents who considered food enjoyment as important bought fewer items bearing the logo.

Another study, by the Dutch Agri-economic Institute (LEI), evaluated the extent to which the addition of the Dutch Choices logo to existing products, as well as the introduction of new products carrying the logo in specific product groups, affected purchases of these products. An impact was perceived, but it is unclear to what extent it can be attributed solely to the use of the logo on these products. Furthermore, it was observed that within some product groups, there was an increased market share of logo-bearing products. (8)

4.2 Impact of the Choices logo in out-of-home settings

Research conducted in 25 workplaces within the Netherlands concluded that the Dutch Choices logo did not have a notable effect on the sale of healthier lunch foods, but may help employees opt for a healthier selection. (9) Over a nine-week period, sales data from 13 cafeterias using the Choices logo were compared daily with 12 control cafeterias offering the same non-logo menu. In addition, 368 employees completed an online questionnaire, both at the beginning of research and following the period during which the logo was used. The results did not demonstrate a nutritionally meaningful effect on the sale of sandwiches, soups, snacks, fruit and salads. Nevertheless, the questionnaire data showed that health-conscious employees might find the healthy choice labelling useful.

In another experiment, conducted in a full-service restaurant setting, consumer response to nutrition information on menu items was measured in order to subsequently determine if consumers use this information to select their menu items. (10) The experiment was conducted with 264 restaurant customers at a full-service, a-la-carte restaurant. In the menu, the Dutch choices logo was explained to the clients. Customers could choose from menu items carrying the Dutch Choices logo, and comparable ones not carrying the logo. Fifty-four percent of restaurant customers opted for the Choices menu item. Logistic regression confirmed that people who desire nutritional information also use this information in their choice of menu. The study concluded with recommendations for the industry to direct consumers toward healthier menu items.

4.3 Impact of the Choices logo on consumption and product appreciation

Steenhuis, et al evaluated whether the “Ik Kies Bewust” (Dutch Choices) logo had an effect on the amount of cake consumed or taste appreciation by young women. (11) The results indicated that a cake bearing the logo was not perceived as healthy, but rather, as less unhealthy than a cake which didn’t carry the logo. Furthermore, the presentation...
of the cake with the Choices logo did not produce an increased consumption of cake, or a different appreciation of the taste.

4.4 Consumer surveys on the Choices logo
Before the launch of the “Ik Kies Bewust” logo, a baseline measurement was taken. Annual surveys were then conducted by global market research company GfK on behalf of the Choices International Foundation in the form of an internet survey among a representative sample (n > 1000) of the Dutch population. The most recent consumer survey, reported here, took place in September 2013. To interpret the results, it is important to note that the logo in its most recent dual appearance (with a green or blue circle around) and with the new name “Vinkje”, had not been on the market long. The new logo gradually replaced the old logo between 2011 and 2013. The survey took place following the first phase of a communication campaign to introduce the new logo to the public.

Results revealed the following (figure 3):
- Over 90% recognized the logo (aided recognition)
- Over 50% found the logo (very) credible, 11% (very) incredible
- In the Netherlands, the logo existed in two colors: green for basic products (according to the Dutch Choices criteria) and blue for non-basic food groups, like snacks, soups and sugary drinks. One third of respondents said they knew the difference between the logos, but when asked for an explanation, only one third of them explained it correctly. Many others, though, did link the logo with health or a healthier variant within a product group.
  - Around half of the interviewees claimed to pay attention to the logo when shopping, and sometimes or often a purchased a product because it had the logo.
  - Over 50% of the interviewees were willing to pay somewhat more for a product with the logo.

An earlier Dutch GfK survey based on focus group interviews (performed by employees of the VU University Amsterdam) provided a qualitative and quantitative process evaluation of the introduction of the Choices logo.(12) Four months after the logo introduction, consumers reported increased exposure and those interested in health reported using it. Elderly and obese consumers reported being more in need of the logo than their counterparts who were younger or had normal weights. Women found the logo to be more credible and attractive than men did, prompting the researchers to speculate that raising awareness of logo use by government and scientific authorities could improve program credibility.

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**FIGURE 3: CONSUMER ATTITUDES ABOUT THE DUTCH CHOICES LOGO**

<table>
<thead>
<tr>
<th>RECOGNITION</th>
<th>CREDIBILITY</th>
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<tbody>
<tr>
<td>+ 90% Recognized the logo (aided recognition)</td>
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<tr>
<th>ATTENTION</th>
<th>VALUE</th>
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5 Potential impact of the Choices logo on diet, nutrient status and biomarkers: modelling studies

5.1 Potential impact of the Choices logo on nutrient intakes

Currently, five different studies have addressed the potential impact of Choices on nutrient intakes. Three of these studies relied on data from the Netherlands, one included data from seven different countries worldwide and one studied the impact of a Choices-compliant diet in Brazil.

The first study calculated the expected effect on the daily diet of the Dutch population if regularly consumed, non-compliant products were to be replaced with products bearing the “Ik Kies Bewust” logo. (13) The replacement of regular products with products bearing the Dutch Choices logo resulted in a 15% decrease in energy intake, a 63% decrease in trans fatty acids, a 40% decrease in saturated fatty acids, a 36% decrease in sugar and a 23% decrease in sodium. Furthermore, increases in the intake of fiber (28%), calcium (17%), iron (13%) and folic acid (5%) were predicted. The authors therefore concluded that the Choices Programme has the potential to have a substantially positive impact on the diet of the Dutch population.

Another study derived the average intakes of energy, trans fatty acids, saturated fatty acids, sodium, added sugar and fiber from dietary intake studies and food consumption surveys in seven countries: The Netherlands, Greece, Spain, the USA, Israel, China and South Africa (figure 4). (14) For each of these key nutrients, the average intakes were translated into three Typical Daily Menus per country. Average intakes based on these three menus were compared with average intakes from three Daily Choices Menus. To compose the Choices Menus, foods from the Typical Menus that did not comply with the Choices criteria were replaced with compliant foods available on the market. Comparison of intakes from the Choices Menus with the survey data demonstrated that calculated intakes of each of the key nutrients decreased, except for fiber intake, which increased. This shows that the Daily Menu Method allows a quantitative look at the calculated changes that sets of nutrient criteria - such as those of the Choices Programme - can have on a country's nutrient intake. Furthermore, it confirms that the criteria that have been set for Choices are strict enough to potentially move intakes into a direction that is more favorable for health.

A study based on the Dutch food consumption survey of 2003 calculated the impact of substituting regular products with those bearing the Dutch Choices logo. (15) According to the study, the substitution resulted in a 15% decrease in energy intake, a 63% decrease in trans fatty acids, a 40% decrease in saturated fatty acids, a 36% decrease in sugar and a 23% decrease in sodium. Furthermore, increases in the intake of fiber (28%), calcium (17%), iron (13%) and folic acid (5%) were predicted. The authors therefore concluded that the Choices Programme has the potential to have a substantially positive impact on the diet of the Dutch population.

FIGURE 4: CALCULATED IMPACT ON MACRONUTRIENT INTAKE

[Graph showing calculated impact on macronutrient intake for the Netherlands, Israel, and Brazil]
to the market share of Choices products in 2007, a small reduction in saturated fatty acids and sugar intake can be achieved, while a maximal 100% substitution produces a greater reduction (23% - 40%) of saturated fatty acids, sodium or sugar intakes.

A Brazilian modelling study showed that replacing typical Brazilian foods by Choices criteria-compliant products may improve Brazilian diets by substantially decreasing unfavorable nutrients while increasing dietary fiber.(16)

Replacing typical products from the Brazilian menu by products complying with the Choices criteria, resulted in a decrease of 52% in saturated fatty acids, 92% of trans fatty acids, 14% of energy and 47% of sodium. Dietary fiber increased by 87%. As data on key nutrients were incomplete in the Brazilian food composition database, the scientists created a new database by collecting information from food labels, resulting in a catalog of 1720 industrialized products. Data on sugar or added sugar were not sufficiently available to evaluate.

Data from another modelling study in a Dutch young adult population also show potential beneficial effects of Choices on energy and nutrient intakes, plus unintended effects on fat soluble vitamins as well (figure 5).(17) Calculated intake distributions showed that median energy intake was reduced by 16% by replacing normally consumed foods with Choices compliant foods. Intakes of nutrients with a maximal intake limit were also reduced (ranging from -23% for sodium and -62% for TFA). Effects on intakes of beneficial nutrients varied from an increase of 28% for fiber and 17% calcium to an unintentional reduction in fat soluble vitamin intakes (-15 to -28%). The estimated reduction of fat-based beneficial nutrient intakes can be attributed to replacement of high-fat foods by alternatives with a better fat quality or lower energy content. The authors recommend studying this effect in more detail. Nonetheless, it is concluded that for the nutrients used in the Choices benchmarks, intakes shift substantially in a beneficial direction when people consume Choices-compliant foods. By choosing healthier options in each product category, consumers could have substantially healthier diets that are more in line with the WHO recommendations. The effect on fat-soluble vitamins should be taken into account when this kind of criteria are considered to implement mandatory.

These five studies show that nutrient intakes would move substantially into a favorable direction when typical menus are replaced by Choices compliant menus, although the size of the effect depends on the local situation. Also, they show that the Choices criteria are equally applicable in non-European countries, like Brazil, even without the adaptations and adjustments allowed for local food
6 Implementation evaluations of the Choices logo

A study was conducted to investigate which factors influence the implementation of the Dutch Choices logo in company canteens in the Netherlands. Surveys were sent to 634 managers of Dutch company canteens that are members of Sodexo or Albron, with a total of 316 completed replies. To encourage the implementation of the logo, it is important for catering managers to consistently strive for healthy eating. The time it takes to produce freshly prepared products complying with the Choices criteria should also be limited. Finally, it could be recommended to include the Dutch Choices logo in the (health) policy of caterers, to further encourage the implementation of the logo in company canteens within the Netherlands.

6.1 Health claims categorized as symbols

The EU-funded CLYMBOL project, which ran from 2012 to 2016, researched consumer understanding of symbols and claims, as well as how they affect purchasing behavior. Symbolic general health claims, such as the Dutch Choices logo, were included in the research. The authors found significant variation by country, with respect to the graphical appearance of the logo as well as the goals and underlying principles.

7 Stakeholder perceptions on the Choices logo

7.1 Positions and perceptions of health policy leaders in Israel

This study aimed to examine positions and perceptions of 15 leading Israeli dietitians and health officials regarding nutrition labelling and the Choices logo, before the planned launch in Israel in February 2011, as well as how they would communicate it to the public as agents of influence. The study involved in-depth face-to-face and telephone interviews using semi-structured protocols. The respondents considered that the nutrition facts panels usually found on the backs of packages are too complicated for the average consumer. Similarly, fronts of packages are cluttered with advertisements and health claims, causing confusion. The study participants would like to see an integrative label on the front of the package to facilitate consumers’ decisions.

The results of the present study highlight the importance of a need for an integrated programme of nutrition promotion, including the use of social marketing based on a cooperative effort between the food industry, regulators and professionals, to recommend changes and adjustments in nutritional front of package labelling with the aim of promoting healthier nutrition consumption.
8 Other applications of the Choices nutrition criteria

8.1 Applications for taxation
A study was conducted to examine the effectiveness of varying taxing and subsidizing schemes to stimulate healthier food purchases. In this study, the Choices criteria were used to select the healthier foods. The authors concluded that price decreases are effective in stimulating healthy food purchases, but the proportion of healthy foods remains unaffected. Price increases up to 25% on unhealthier products did not significantly affect food purchases.

8.2 Label claims on fine bakery wares
Sets of nutrient criteria can be applied to identify fine bakery wares with a significantly better nutritional composition than the average range of products. More than 200 commercially available fine bakery wares carrying claims were identified in Germany, France, Spain, Sweden and United Kingdom. These were evaluated against five sets of nutrient criteria. Total energy, saturated fatty acids, sugars, sodium and fiber were critical parameters for the categorization of products, with the Choices criteria being the most restrictive model in this category. Different sets of criteria for subcategories of fine bakery wares did not seem necessary.

9 Multiple models: research on other FOP programs

Since the introduction of nutrition labelling models, numerous studies have focused on consumer understanding and effectiveness of different labelling schemes, including how single, interpretive, positive logos compare with traffic lights or GDA-like labelling systems. This chapter highlights some of the research on other FOP programs, including some studies comparing these systems to Choices.

9.1 Evidence on consumer use is promising, but more research is needed
A comprehensive overview and evaluation of the quality of the methodology was presented in a review study. The authors concluded that, at the time, few methodologically-sound studies were available and there was a need to measure the health effects of FOP labels in a real-life setting, using biomarkers in a longitudinal, randomized controlled design. Very little new evidence has been added to the published literature since this conclusion was made in 2014, illustrating the need for more research in this important area.

However, more recently a between-subjects experiment of over 160 supermarket shoppers in the United States sought to determine effectiveness of a FOP label in aiding consumers in their assessment of the nutrient density of various products. Researchers concluded that Facts up Front labels (offering various levels of nutrient information) and the Health Check FOP label (interpretative check mark label with no nutrient information) were effective for nutrition assessment of snack products compared with products with no label.

A web-based study tested consumer understanding of different FOP labelling systems. Adult participants (N = 480) were randomized to one of five groups to evaluate FOP labels: 1) no label; 2) multiple traffic light (MTL); 3) MTL plus daily caloric requirement icon (MTL+caloric intake); 4) traffic light with specific nutrients to limit based on food category (TL+SNL); or 5) the Choices logo. Total percentage correct quiz scores were created reflecting participants’ ability to select the healthier of two foods and estimate amounts of saturated fat, sugar, and sodium in foods. Participants also rated products on taste, healthfulness, and how likely they were to purchase the product. The findings suggest that both the Choices and MTL+caloric intake labels have limitations but that overall, they perform similarly in educating the consumer.

A new model was developed to compare and visualize existing front-of-pack nutrient profiling schemes. They identified 40 of these front-of-pack systems currently in use. The various systems are found on all continents, most of them initiated in North America. 90% of the systems have criteria based on thresholds, only a few use a scoring approach. More disqualifying than qualifying criteria are used. The disqualifying ingredients most often used are...
saturated fatty acids (SFA), total fat, trans fatty acids (TFA), sugar, sodium, energy and cholesterol. Dietary fiber is the most frequently used qualifying ingredient in the FOP-systems. The funnel model provides an easy-to-use overview of the differences and similarities between systems like Choices, Keyhole, Heart logos, single-color or color-coded GDA and many more, based on eight different characteristics.

Eye-tracking studies were used to measure whether and how attention to nutrition information mediates consumers’ choice. The study demonstrates that color-coded and monochrome GDA’s result in more attention and more product selection compared to the Choices logo. This effect can be explained by the time it takes the consumer to process the labelling information. The authors therefore propose to distinguish between attention-getting and attention-holding properties of the nutrition label format. As the Choices logo has a simple format, the attention-holding time might be lower compared to GDAs. However, authors did not state how many of the studied persons did know the meaning of the Choices logo or if the logo was explained. The study concludes that studies in real shopping environments are needed. The authors suggest that it is not unlikely that these studies might demonstrate that a simple logo such as Choices could have more influence on consumer choice.

However, a systematic literature review of various FOP formats suggested that consumers prefer different systems depending on their dominant method of processing information, which reflects their personal variables.
(nutrition knowledge, time pressure, motivation). These authors called for more “real-life” research to understand this important interplay.(29)

9.2 Is simpler better?
Other experiments to compare programs were conducted in the past. For example, a comparison of simple logos, such as the Choices logo, with more complex labelling systems, such as traffic lights and GDA, was made in 2008. (30) The authors found that simple logos (including the Choices logo) were found to require less time to interpret, making them more suitable for use in supermarkets, where people must make rapid decisions about which products to purchase. Figure 6 represents relative comparison of some FOP logos based on positivity/negativity and simplicity/complexity.

9.3 Understanding and credibility
Qualitative research on Australian consumers around the National Heart Foundation’s (NHF) Tick program – in place for more than 25 years – showed that consumer awareness and understanding of the program was high. However, views have been mixed over the program’s role and credibility in light of certain commercial licensing agreements.(31)

9.4 Effect on product reformulation and consumer recognition
Stimulating reformulation while providing consumer guidance is no small feat. Recently, technology-based data collecting initiatives have been recommended in order to achieve both goals of most FOP programs: stimulating improvements in product composition while providing consumers with understandable guidance.(32)

In New Zealand’s NHF Tick program, research shows that the program and FOP logo do have a positive impact on the food supply, motivating manufacturers to reformulate and innovate towards products with better nutrient profiles. Over time, researchers stressed that these changes will likely result in improvements in population nutrient intakes and reduced risk for cardiovascular disease. (33) In fact, this same group of researchers found that the presence of the Tick “influenced food companies to remove approximately 16 tonnes of salt through the reformulation and formulation of 52 Tick-approved breakfast cereals, edible oil spreads, cooking sauces and processed poultry products.” In addition, companies reported additional programs targeting reformulation and as well as increased consumer interest in healthier products, reinforcing the credibility and effectiveness of the Tick on local consumers.(34)

When the Heart Check, a voluntary nutrition labelling program by the Heart and Stroke Foundation of Canada, was studied for its use in restaurants, researchers found that consumers noticed the logo and used nutrition information during meal selection at greater rates compared to consumers in restaurants that did not use the Heart Check. However, due to menu complexities, researchers were unable to decipher whether the restaurants using the Heart Check had more favorable nutritional profiles compared with restaurants not using the Heart Check.(35)

A study about adolescent attitudes around snacks with nutrition labels in Norway showed that the Keyhole symbol increased health perceptions without influencing taste perceptions. Researchers commented that these findings illustrated the Keyhole’s importance in promoting healthy snack choices among adolescents.(36)

9.5 Potential effect on nutrient intake
In Finland, researchers examined the potential effect revising food compositions according to the national Heart Symbol criteria would have on fat, sugar, sodium and saturated fat intakes. Results were promising: “the mean intake of saturated fat decreased from 14.3 energy% to less than 10 energy%. The mean daily intake of sodium decreased by more than 10%.” This led researchers to conclude that there is great potential for use of the Heart Symbol, a positive logo based on the same principles as Choices, to stimulate decreases in saturated fat and sodium.(37)

9.6 Potentially greater impact when part of a comprehensive program
Some studies, such as a systematic review of research published between 2003-2015, indicate that combination approaches – including elements of price, labelling, information and easy access healthy foods – will help consumers make healthier choices.(38) A supermarket intervention made up “multiple components, implemented simultaneously”, including an emphasis on labelling healthy foods, helped low-income consumers identify healthier foods.(39)

Focus group research in the UK about foodservice environments showed that consumers wanted a “simple uncomplicated label placed next to the target meal or on menu boards to signpost healthy choices” in addition to complementary informative messages.(40)
10 Summary of research findings

10.1 Innovation and reformulation
In relation to product innovation and reformulation, research suggests a strong sodium and sugar reduction of Choices-compliant products over time, while the fiber content has increased.

10.2 Consumer research
Preliminary results of EU-funded CLYMBOL research shows that the introduction of FOP logos in the Netherlands and Denmark, respectively, may drive purchasing decisions.

During the first years after the introduction of the Dutch Choices logo, Dutch consumers gave a high degree of recognition and credibility to the Choices logo, which they say is easy to interpret and therefore suitable for people who need to shop quickly. Scientific research points out that people who pay attention to healthier diets buy more products with the Choices logo, but it is unclear whether this is solely due to the logo, or whether other factors are more important (such as increased publicity). Most consumers indicate that they do not consume more of a certain product when it bears a Choices logo, and this is confirmed by the results of a practical study.

In terms of catering, the Choices logo has only had a marginal influence on point-of-sale purchases, with only those respondents motivated by health indicating that they make use of it. This demonstrates, however, that individual motivation to eat more healthily is a major incentive for using the logo. An experiment in a full-service restaurant indicated that a small majority (54%) opted for Choices-labelled menus.

10.3 Potential impact on diet and nutrient intake
Using the Daily Menu Method, Research revealed that if consumers were to consistently select products that comply with the Choices criteria, their daily diet would be more in line with international dietary guidelines. Indeed, their intake of nutrients which negatively impact health would be noticeably reduced, while their intake of most beneficial nutrients would increase. It was also shown that a small beneficial effect on cholesterol can be expected. A calculated reduction of fat soluble vitamins due to a shift towards lower fat products has been found in the latest model study. This would be of concern when all products consumed comply with the criteria.

10.4 FOP-labelling research
As Vyth et al. concluded from their review on the quality of FOP-labelling studies, few methodologically sound studies are currently available. However, some national programs have been evaluated and do show widespread recognition and understanding over time. Recommendations for future research include the need for measuring the health impact of FOP-labels in a real-life setting by using biomarkers in a longitudinal, randomized-controlled design.

10.5 Comprehensive programs may have greater effect
Evidence points to the usefulness of front-of-pack logos in conjunction with complementary activities to have a greater effect. Such comprehensive programs, including education, pricing incentives and accessibility of healthy foods may lead to greater improvements in nutrient intake and health outcomes.
11 References


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