LEGISLATIVE FACTORS AND PRODUCT SPECIFICATIONS IN THE MARKETING OF "LIGHT" FOODSTUFFS

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Abstract

In the second half of the twentieth century, a new paradigm in food consumption emerged, expressed in the quest for low-calorie foods, with the objective of meeting new aesthetic standards, but also countering the development of overweight-related diseases.

The food industry has been able to grasp the consumers' current needs with the introduction of reduced-calorie foods that, unlike other categories of products, have been showing an increasing sales trend.

In this paper, after analyzing the specifications, composition and production characteristics of low-calorie food products, we have attempted to clarify the effectiveness of said foods and the way the latter are perceived by consumers, in the light of the developments in the legislation regulating the marketing of reduced-calorie foods.

Riassunto

Nella seconda metà del XX secolo si è affermato un nuovo paradigma nei consumi alimentari che si esprime nella ricerca di beni a basso contenuto calorico sia per avvalorare i nuovi canoni estetici sia per contrastare la diffusione di malattie legate al sovrappeso. L'industria alimentare ha saputo cogliere questo nuovo bisogno dei consumatori con l'introduzione degli alimenti light che, a differenza di altre categorie di prodotti, registrano un trend crescente delle vendite.

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Nel presente lavoro, dopo aver analizzato le caratteristiche merceologiche, produttive e di composizione degli alimenti light, si è cercato di fare chiarezza sull'efficacia di questi alimenti, sulla percezione che ne ha il consumatore, alla luce dell'evoluzione normativa che ha interessato la loro commercializzazione.

Keywords: "light" foods, claims, nutritional labelling

Introduction

The rise of "light" products in the food market

The food industry has always been very dynamic, due to the necessity of the supply to meet the changing and increasingly innovative requirements of the demand. The best example is the fact that in the last three years the Italian food industry has put into the market more that 4,000 products, either entirely new or bringing new features to existing ones (1), in a way that the nutritional and composition characteristics of many of the goods that form the present-day family shopping basket are different from the past.

As regards the demand, we can underline that, although nutrition represents an increasingly reduced part of the consumer's overall expenditure, since it went from 26.1% in 1983 to 17.7% in 2007 (2) (Federalimentare, 2008), the requirements are more and more detailed and, among them, the quest for health and wellbeing appears as a focal point of innovation (3). From 2003 to 2008, the volume in the sales of health foods recorded a growth rate of 59% compared to the other clusters being examined, showing the consumers' needs were more oriented to lighter and healthier products (4).

Besides, according to the Nielsen data, in the first quarter of 2009, the "health-shopping cart" sky-rocketed, registering a positive sales trend in nearly all the product categories, among which we report a 7.7% increase in the "light" products, a +24.7% in the fat-free, and a +1.4% in the low-calorie[1].

Among the health foods, the "light" products emerge for their strong presence in the supermarket shelves, under different names but all

[1] To complete the health products' taxonomy, we report the growth rates of gluten-free (+17.2%) and soy (+4.7%) products, of probiotics (+4.3%), and of wholemeal foods (+2.2%) (5).

pursuing the same objective: sales promotion based on one single message emphasizing the lightness and the reduction in the daily energy value, in terms of kilocalories.

The new consumers' attitude is undoubtedly positive, since it is aimed at correcting bad eating habits, which can lead, over time, to an excessive weight gain (overweight and obesity) and to the development of serious disorders. As a matter of fact, in the latest years, not only quantity and quality of the foodstuffs consumed have changed, but also the global energy balance, that is the overall daily calorie intake, which grew from about 2,546 kilocalories per person at the beginning of the '50s to 3,000 in 1983, registering an increase of almost 18%. Nowadays, thanks to more sensible eating habits, and to the rise of hedonistic patterns that increase weight consciousness, an average daily calorie intake of about 2.200 per person has been reached (6).

However, while, on the one hand, the overall individual energy intake has been reduced, on the other hand, the pursuit of "light" products is not always straightforward, being related to the information on the chemical composition and the amount of nutrients present in the food, which is not always easily accessible to the majority of consumers.

To this end, it is necessary to recall here that the characteristics of a good can be grouped into three main categories: *search*, when verifiable by the consumer at the time of purchase (7), *experience*, when they can be ascertained only after consumption (8), and credence, when they cannot be verified at the time of purchase or after consumption (9).

Leaving aside the features that can be perceived at the time of purchase (*search* category), we can observe that the consumer can achieve awareness of the other two through a labelling that can explain the products' composition and nutritional content.

The food industry interpreted correctly the consumers' need for information, and it created an increasing number of messages, and nutrition and health labels, using slogans referred to the food's lightness and properties.

However, the desired results were not always reached, and the purchase decision was not always facilitated by the above-mentioned slogans. In order to guarantee transparency, in 2006 the European Parliament and the Council issued Regulation No. 1924 of 20 December, on nutrition and health claims made on food products, with the objective of providing a higher level of consumer protection, guaranteeing at the same time the free movement of goods and homogeneous conditions of competition.

In the present work, after analysing the specifications of the "light" products, we have focused on the analysis of the nutritional messages that accompany the sale of some foodstuffs, in the light of the most recent regulatory evolution. From a survey conducted among several department stores, it has emerged that the use of nutrition claims is not always adequate to support the customers' purchase decisions. Anticipating the results of the survey, we can say that the labels on the products can often be misleading, even when the information contained therein is authorised by the legislator: in such a case, more care should be put in the application of Regulation (EC) No 1924/2006, in order to keep the pace with the food industry's evolution. In other cases, misinterpretation is due to a labelling containing omissions, enhancing features that are not scientifically proven or not specific of the product advertised.

The framework of nutritional messages in the international background

The growing attention awarded to nutrition, due to its impact on human health, has considerably increased awareness of the nutrition and health claims on the package or on the advertising campaigns.

In particular, the rapid spread of "light" or reduced-fat products has highlighted the necessity at international level to elaborate an ad hoc regulation, aimed at ensuring accuracy in the message delivered by this type of products. While in the United States rules for the use of the word "light" (*lite*) have been set since the beginning of the '90s by *The Nutrition Labelling and Education Act* (10), the European Union has stepped in only recently.

Actually, since 1979, the European Parliament and the Council have been issuing a series of norms aimed at ensuring the accuracy of nutrition and health claims, with special regard to those claiming to contribute to a healthy diet, such as the energy-reduced.

As a matter of fact, although in compliance with Directive 2000/13/EC [2], eventually amended by Dir. 2007/68/EC, all the labels in the pre-packaged foodstuffs marketed at Community level must list the ingredients (Table 1), Directive 91/496/EEC[3] requires those products packaged or promoted through nutrition claims to be provided with a nutrition label as well, so that «a food associated with an advertisement referring to particular

[2] Directive of the European Parlament and of the Council of 20 March 2000, No. 13, published in the O.J.E.U. of 6 May 2000, No. L 109 p. 29, as amended. Said Directive has consolidated Directive 79/112/EEC, repeatedly and substantially amended.
[3] Directive of the European Parliament and of the Council, of 24 September 1990, No. 496, published in the O.J.E.U. of 6 October 1990, No. L 276 p. 40, amended by Directive No. 2003/120/EC.

nutritional claims related to the energy provided »[4], shall state the energy value and the quantity of nutrients (and their components)[5] provided (Table 2).

TABLE 1

MANDATORY NUTRITION LABELLING FOR FOODSTUFFS, DIR. 2000/13/C

	Content
Sales name (art. 5)	- The name customary in the Member States or failing this, the description of the foodstuff or of its use; - The physical condition of the foodstuff or the specific treatment which it has undergone.
List of ingredients (art. 6)	- The ingredients shall be listed in descending order of importance, and they shall appear preceded by a suitable heading"[6].
Quantiy or category of ingredients (art. 7)	It shall be expressed as a percentage and it is compulsory only: - *"where the ingredient or category of ingredients concerned is emphasised on the labelling in words, pictures or graphics; or* - *where the ingredient or category of ingredients concerned is essential to characterise a foodstuff "*
Net quantity (art. 8)	- Units of volume in the case of liquids; - Units of mass in the case of other products.
Minimum/ maximum durability (art. 9)	The use-by date "shall consist of the day, month and year"[7]

Source: our elaboration of Directive 2000/13/CE

Actually, Directive N°. 496 does not establish specific rules for the content, that is the message delivered by nutrition claims, although it pro-

[4] Art 1, c. 4, letter b), Directive 90/493/EEC.
[5] Art. 6 Directive 90/493/EEC.
[6] Derogations apply to said list, so that in special product conditions, the ingredients are not mandatory.
[7] Exceptions apply for products of particular durability.

vides for the latter to comply with the general principle which prohibits misleading information (11).
However, in 1994, the Council of the European Union laid down detailed norms for the nutrition labelling of spreadable fats[8], allowing the "reduced-fat" labels for products with an amount of fat between 41% and 62%, and the "low-fat" and "light" labels for those products with an amount of fat below 41%.

TABLE 2

STANDARDS FOR NUTRITION LABELLING, DIR. 90/496/CEE[9]

Group A	**Per 100g / Per 100ml / Per serving / Per portion**		**Group B[10]**	**Per 100g / Per 100ml / Per serving / Per portion**
Energy value	kcal and kJ		Energy value	kcal and kJ
Protein	g		Protein	g
Carbohydrate	g		Carbohydrate	g
Fat (cholesterol)	g (mg)		Fat (cholesterol)	g (mg)
			Saturates	g
			Fibre	g
			Sodium	g

Source: Our elaboration of Directive 90/496/CEE

In 1997, the guidelines for the use of nutrition and health claims[11] were published by The *Codex Alimentarius* Commission, which was funded by FAO and WHO in 1963, with the purpose of underlining the general guidelines for promoting consumers' health and fair trade at international level (12).

8 Regulation (EC) no. 2991/94 of the Council, of 5 Dicember 1994, establishing norms for spreadable fats, published in the O.J.E.U. of 9 December 1994, no. L 316, p. 2.
9 On a mere voluntary bases, it is also possible to provide information on the amounts of starch, polyols, mono-unsaturates, polyunsaturates, vitamins and minerals (only those provided in the Annex to Dir. 90/496/EC).
10 Group B is compulsory for nutrition claims on sugars, fatty acids, sodium, and fibre.
11 Guidelines for use of nutrition and health claims, CAC/GL 23-1997, adopted in 1997, revised in 2004 e amended in 2001 and 2008. The revision in 2004 included the regulation of health claims.

In accordance with the CAC/GL 1-1979[12], issued by the Commission, a nutrition claim means «any representation which states, suggests or implies that a food has particular nutritional properties including but not limited to the energy value and to the content of protein, fat and carbohydrates, as well as the content of vitamins and minerals». Rules that allow claims on the content of specific foodstuffs as well as comparative claims are laid down in the guidelines, the latter being those labels that compare the presence of nutrients or the energy value of two or more foodstuffs.

The issuing of such a document and the contextual spread of more and more attention-catching claims, among which the "light" label, have lead some EU Member States to adopt norms aimed at avoiding a wrong interpretation due to the broadness of certain messages.

Therefore, in order to guarantee consumers' protection and prevent that different regulations in force in the European Countries should hinder the free movement of foodstuffs, the European Commission, in the White Paper on Food Safety of January 2000, proposed the introduction of a specific legislation on nutrition claims (13).

To enhance the necessity of such an initiative, a survey carried out at the beginning of the new century by "Which?", the United Kingdom's Consumer Association, had highlighted that the majority of British consumers could not fully understand the information provided by nutrition labels: for examples, the majority of the respondents was not aware of the true meaning of the labels "fat-free", "low-fat", and "90% less fat" (30), and wrongly attributed the latter products the smallest quantity of fat, while they actually contain more than the others.

The first step for a community regulation on nutrition labelling has led to the drafting of a *Discussion Paper*[13], by the Directorate General for Health and Consumers (DG SANCO) of the European Union, which has laid the groundwork for a shared definition of nutrition claims and their field of application, among more than 90 agents, including Member States, consumer associations and food industries.

Particularly noteworthy are some considerations on the suitability of the "diet" label, often used as a synonymous of "light", but which can be easily confused with the word dietary, specifically disciplined by Directive 89/398/CEE, which refers to foodstuffs for people with a specific diet.

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12 General Guidelines on Claims, revised in 1991.
13 See Art 1, c. 4, letter b), Directive 90/493/EEC.

At the end of the consultation, and after three years of work, the European Commission, in July 2003, presented to the Parliament and to the Council the proposal for the Regulation on nutrition and health claims (15). In August 2005 the *BEUC*, the European Organization that coordinates the consumers associations of each Member State, published the results of a survey on the European consumers' perception on foodstuff labelling (16), in order to allow the parties called to revise the proposal to assess the consumers' awareness. Said survey, carried out between February and April of same the year of issue in five Member States (Germany, Denmark, Spain, Hungary and Poland), had spotlighted that, although three quarters of the respondents had claimed to be interested in nutrition and in the pursuit of a balanced diet, only a low percentage (around 20%) did actually read and understand nutrition labels.

Besides, more than half of them expressed in favour of nutrition labels, deemed as easy to identify and understand: a great support in the purchasing choice, especially if linked to a popular brand.

In December 2006 the legislative process eventually came to an end, with the approval of Regulation 1924/2006 (17), entered into force in all the Member States twenty days after its publication in the Official Journal of the European Union, although its application date was July 2007. Its purpose was to bring clarity into the various and diversified world of nutrition labelling, by reconciling the opinions of the Member States and the international provisions of the *Codex Alimentarius*.

The difficulty of such an attempt, made more serious by the rather slow pace of the legislative process, gives rise to concerns on the Regulation's effectiveness, especially in the light of what is being offered nowadays on the supermarket shelves. In our opinion, the cases analysed hereinafter, focused on "light" products only, show that the development of healthy eating habits in the consumers, and of accuracy and transparency in the producers' advertising, is still far to be achieved.

Methodology

The current work has been written with the purpose of verifying the effectiveness of the norms under Regulation 1924/2006 (so-called "claims Regulation") as regards the use of the "light" (and synonymous) nutrition label, two years from its entry into force in the Member States.

The research has begun with the comparison of the reduced-fat products' definition as it appears in the European Regulation, with the one provided by the most expert Italian nutritionists.

Afterwards, the manufacturing techniques of said foodstuffs have been thoroughly analysed. The differences emerged during the first stage of analysis, and the issues underlined in the second one, have urged a field research: some samples of "light" products, as well as their traditional equivalents, belonging to different categories, have been acquired, in order to study and compare the advertisement, the packaging and the labels.

To this end, some tables have been drafted, listing the composition, the energy value, the nutrients, the weight or the units contained, the price, and the nutrition claims used in the classic and "light" version of the foodstuff being examined. The method has allowed us to notice the differences immediately, so that we could verify their compliance with the laws in force, and assess the accordance of the nutrition label with the provisions of the Regulation. Finally, we attempted to appreciate the consistency of the prices on the bases of a greater or smaller complexity of the manufacturing process required by the different composition of the foodstuff in its two versions.

The definition of "light" in the Regulation 1924/2006 from the perspective of product specifications and nutrition factors

The entry in force of Reg. 1924/2006 regulated the use of nutrition messages, stating that the above must be consistent with the labels permitted by the legislator and, in some cases, they must be specifically authorised. In the Annex to the mentioned Regulation, the definition of the "light" nutrition label and the related conditions for use are provided: «a claim stating that a product is "light" or "lite", and any claim likely to have the same meaning for the consumer, shall follow the same conditions as those set for the term 'reduced'; the claim shall also be accompanied by an indication of characteristics which makes the food "light" or "lite"».

Basically, the provision follows the *Codex Alimentarius*' 1997 Guidelines, disregarding the Nutrion Labeling and Education Act[14], according to which a "light" foodstuff's rate of reduction is greater than that of one bearing the label "reduced".

The latter is allowed by the European regulation for products in which the nutrition substance is present with a quantity at least 30% less than a similar product, except the micronutrients, for which a 10% difference is allowed, and for sodium, for which a 25% difference is allowed.

[14] The Nutrition Labeling and Education Act establishes a higher reduction in calories, fats and salt than the one permitted for the use of the term "reduced" (50% against 25%), and provides a more detailed discipline of nutrition claims.

Finally, the Regulation permits the use of the word reduced also as regards the calorie content[15]. Only on the last point, full correspondence is met with the definition provided by the most expert Italian nutritionists, according to which the "light" foodstuffs feature a reduced calorific value with respect to their traditional equivalents, due to a variation in the chemical composition (18).

Therefore, while the Regulation identifies the reduction in the energy power with one of the prospective characteristics that allow the use of the correspondent claim, the experts in the industry regard it as the only true difference between "light" and traditional foodstuffs, and this is fully supported in the U.S. regulation, according to which the "light" label can be applied with regard to fats only if it complies with the provisions for the smaller energy amount, and with regard to sodium, only if the product presents at the same time a reduced content of calories and fats, and it also reduces the salt of the mandatory percentage.

Anyway, up to today, the majority of the products marketed as "light" pursues the objective of reducing the total daily calorie intake and, therefore, it suggests a reduced contribution of calorific substances, that is, in order, fats (9 kcal/g), alcohol (7.1 kcal/g) and sugar (4 kcal/g). This result can be reached with different production techniques: replacement of fats, or addition of air (foaming method) or of water. The replacement technique requires the identification of the nutrition components with the smaller energy content or - wherever possible-, zero-calorie, which are to replace the chemical substances removed without altering the product's texture or flavour, in order not to prejudice its price positioning or the organoleptic assessment.

In the case of fats, restructured proteins, whey derivatives, vegetable proteins, modified starches or others (to partially make up the calorie deficit) are used as substitutes, although often, in order to maintain unchanged the sensory quality of the foodstuff, additives such as flavour enhancers, emulsifiers or preservatives are introduced.

The latter in particular become necessary when water is added to the product, making it more easily perishable. Intensive sweeteners and polyols (such as, for example, sorbitol, xylitol, and mannitol) are often used to replace sugars, especially sucrose. When their use is aimed at weight management, their scarce contribution must be pointed out since, in the case of sucrose, the calorie make-up is around 1.6 kcal per each gram of sugar replaced, which would equal to an average reduction of 80

15 Regulation 1924/2006 – Annex, listing the authorized nutrition claims and the condition for use.

kcal/die in the case of an hypothetical replacement of all the simple sugars, about 50 grams in an average diet of 2,000 kcal per day (19).

Artificial sweeteners must be previously authorised by the Ministry of Health, which determines the recommended amounts. The reason being that said substances are likely to alter the flavours of the foods and enhance the perception of sweetness, inducing the consumer to prefer more and more "sweetened" products, even though the abuse of such substances has been proven to lead to gastrointestinal disorders. Finally, the more complicated manufacturing process involved in the production of "light" products often implies the loss of some important components, such as vitamins and fatty acids, vital to a balanced and healthy diet.

Therefore, the differences between the provisions of law adopted by the European Community and the definition shared by the nutritionists as regards the "light" products, as well as the multiple alterations the latter have undergone to obtain a satisfying and durable flavour, give rise to some concerns on the comprehensiveness of Regulation 1924/2006, in terms of consumers protection.

According to the mentioned Regulation, a "light" foodstuff does not necessarily have to provide less energy power than a traditional one: in theory, an ingredient that increases the total calories without breach of the norm could replace the reduced nutrient.

Besides, as mentioned previously, the processes undergone by the product could have caused the loss of some important substances, so that its overall energy value is reduced. However, the norm in question seems to disregard this issue, which can nevertheless be important to allow the consumer a correct economic assessment of the product.

Finally, daily evidence shows that products bearing the "diet" label as synonymous of reduced-fat are still widespread, although Regulation 1924/2006 does not provide in this sense.

The reason being, as dealt in the second part of the forward, the products that can be labelled as "diet", according to the European law (Dir. 89/398/CEE)), are intended for consumers with specific nutritional needs, either because they are affected by metabolic disorders, or because their condition is such that they might benefit from the moderate intake of certain substances in foodstuffs. Besides, the Directive itself forbids the use of the word diet for the labelling of commodities. The "light" products, hence, differ from the dietetic ones because they target consumers who merely wish to lose weight, and do not suffer particular disorders.

The issues emerged required an in-depth analysis through a field research on "light" products and, wherever necessary and possible, the dialogue with the producers.

Results

"Light" food is awarded a smaller calorie contribution by the consumer, who is therefore convinced it represents a healthier choice with respect to the traditional one, also because he is attracted and believes in the benefits of a food that promotes lightness, wellbeing and health (20).

In the previous paragraphs some issues have already been dealt with, such as the composition of said foodstuffs, and how far from reality the association of light and weight loss can be. To reinforce what has been said, some categories of foodstuffs have been examined, comparing traditional and "light" products. The standards adopted are the message delivered by the packaging, if aimed at emphasizing the product's lightness, the correspondence with the legislative provisions, the nutritional values and the price. In Table n°. 3, 4, 5, and 6, the results of the research are presented, and some examples of best and worst practices provided.

TABLE 3

TRADITIONAL SUGAR, SUGAR WITH ARTIFICIAL SWEETENERS, AND PURE SWEETENERS (VALUES PER 100 g OF PRODUCT)

	Product 1	**Product 2**	**Product 3**	**Product 4**
Composition	Sucrose (cubes)	Sugar Acesulfame k Flavourings (cubes)	Brown sugar Acesulfame k Flavourings (cubes)	Lactose Aspartame Adjuvants E468 Leucine (tablets)
Energy value Proteins Carbohydrates Fats	400 kcal 0 100 0	396 kcal 0 99 0	396 kcal 0 99 0	355 kcal 41.4 47,3 0
Claim	Sugar for beverages or others	The flavour of sugar with 75% fewer calories	The flavour of sugar with 75% fewer calories	---
Amount per package	168 cubes	204 cubes	204 cubes	120 tablets
Price (Euro/kg)	1.24	8.62	15.48	378

Source: Our elaboration of the information provided on packages and nutrition labels

As it can be noted in Table 3, equal amounts (in weight) of the first three products, provide the same amount of energy.

It is clear that, in order to obtain the same sweetening effect, a smaller amount of product 2 or 3 is to be used, given the high sweetening power of aspartame k which, if we equal to 1 the sweetening power of sucrose, with as little as 0.03 g can replace a 6-gram teaspoon of sucrose, with an energy contribution of zero calorie (6).

Given the necessity of different amounts to obtain the same sweetening power, we can say that the first two products are similar in price range, although, as known, artificial sweeteners cost 3 to 5 times less than natural ones.

However, from the comparison between number 2 and 3, it is difficult to justify the price difference (+62,5%), as the products are produced by the same company, in the same format – cubes - therefore both the manufacturing process and the composition of production costs should be similar.

The mark-up could be attributed to the presence of brown sugar (the only element which distinguishes the two foods), although the price of brown sugar does not exceed 4 euros/kg, and that only in the case of organic products. Besides, acesulfame k is an artificial sugar, that is, synthetic, with a bitter aftertaste, which is not always pleasant.

We wonder, then, if this product is worth such a high price, since, while reducing the amount of calories, at the same time it is likely to increase the amount of the intake, thus invalidating the overall energetic result.

As regards the last product in the list (number 4, made of aspartame, which is similar to acesulfame k), the price per kg is the highest of all the sweeteners in the market, and this can be only partially attributed to production costs.

However, both claim and the labels comply with the regulations in force.

TABLE 4

CLASSIC AND REDUCED-SALT GRANULAR STOCK CUBES (VALUES PER 100 GRAMS OF PRODUCT)

	Product 1	Product 2	Differences
Energy value	172.8 kcal	220 kcal	+27.31%
Proteins	18.7 g	20.2 g	
Carbohydrates	23.6 g	33.9 g	+43.65%
- *sugars*	7.0 g	4.0 g	
Fats	0.4 g	0.5 g	
- *saturated*	0.06 g	0.1 g	
- *mono-unsaturated*	0.3 g	0.4 g	
Fibre	0,1 g	0.2 g	
Sodium	**21.5 g**	**16.1 g**	**-25.12%**
Iodine	1.3 g	0.9 g	-30.77%
Total salt	22.8 g	17 g	-25.44%
Price (Euro/kg)	**6,53**	**14,08**	**+115.62**
Claim	Flavour and lightness 0.4% fat	Flavour and lightness -30% salt	
Stock cube price (by comparison) (Euro/kg)	**9.90**	**8.90**	**-10.10**

Source: Our elaboration of the information provided on packages and nutrition labels

In the case of granular stock cubes (reported on Tab. 4) the claim is focused on the content of salt, which accounts for 30% less than the traditional product. From the comparison emerges that the sodium contained in product 2 ("light") equals 16.1 g, which means a reduction of around 25%, and not 30%, as declared in the label. Such a result would be insignificant if we also considered the amount of iodine in the global reduction in salt (25,44%) [16].

It follows that the quantitative data are not consistent with the advertisement, although they comply with the provision in Regulation 1924, allowing the label "reduced/light" to appear in those foods in which the amount of salt is less than 25%.

[16] According to the Ministerial Decree No. 106 of 31/1/1997, table salt must contain at least 97% sodium chloride. This implies that it is basically sodium. However, Regulation 1924/2006 on nutrition claims refers to salt in terms of sodium or equivalent value for salt, which suggests all salts, as for chemical composition, including iodine, are being considered.

This product contravenes the general norm that forbids misleading information. Besides, in the "light" granular stock cube, the amount of sugar is higher than 43%, so that the total calories are increased of 27%.

This represents an example of labelling with a claim of lightness, which should be referred only to the amount of salt, and not to the product's total calorie value, and is in conflict with the most reliable nutrition labels, which confer the product the feature of reducing calories with respect to their traditional equivalents.

The U.S. legislation on the matter states that the reduction in mineral salts shall always be accompanied by a suitable reduction of the calorie contribution.

Obviously the claim "light", used by the granular stock cubes, directly impacts on the sale price, which is more than double than the classic one.

It is also surprising that such price disparity is not found in the stock cube, in which a sodium reduction of 30% actually corresponds to the values on the label, but it does not impact on the price of its "light" equivalent, which is lower (respectively, 9.90 euros/kg for the classic, and 8,90 euro/kg for the "light" version).

Some products surveyed on the supermarket shelves have shown labelling mistakes, and they have to be duly considered worst practice. For example, a type of crisps labelled "light" and "low-calorie", without specifying the substance or specific to which the energy reduction is due.

From the data on snack food of the National Research Institute for Food and Nutrition (hereinafter INRAN), an average value of reference of 507 kcal per 100 g is shown for crisps, while the above mentioned package reports 491; therefore, with respect to the relevant category a slightly over 3%, decrease is shown, far less than the 30% required by the "light" label (7).

In Table 5 we report a case of best practice, as the product ("light" sliced cheese) fully complies with the regulation as concerns the values reported– fats are objectively 50% less than in the classic product – with a reduction in price equal to 5%, due to the reduction in the "light" version's nutrition value.

TABLE 5

CLASSIC AND "LIGHT" PROCESSED SLICED CHEESE

	Product 1	**Product 2**	**Differences**
Energy value	255 kcal	196 kcal	–13.73%
Proteins	17.5 g	19 g	
Carbohydrates	3.2 g	7.8 g	+143.75%
- *sugars*	3.2 g	6.3 g	
Fats	**18.5 g**	**9 g**	**–51.35%**
- *saturates*	12.5 g	6.2 g	
Fibre	0 g	0.0 g	
Sodium	1-2 g	1.1 g	
Calcium	532 mg	521 mg	–2.07%
Price (Euro/kg)	**7.25**	**6.85**	**–5.52%**
Claim	Processed sliced cheese	Light processed sliced cheese 50% less fat than the classic	

Source: Our elaboration of the information provided on packages and nutrition labels

In our research a foodstuff in the crackers category has been identified, labelled "light flavour", which claims a content of fats 50% lower than the average of the most popular ones, mentioning the IRI as a source.

Only after a thorough search on the net we were able to find the Information Resources Inc., renown market research Company, which, although being an authoritative source, is not easily found by the average of the consumers. Therefore, it would be better to report its full name or, even better, to refer to more reliable sources.

Besides, according to INRAN, the average lipid content in the crackers should equal 10 g. Per 100 g of edible product. It follows that the foodstuffs identified in the supermarket, with a label reporting 5.9 g would not fall within the 50% the product claims to belong to.

TABLE 6

"LIGHT" AND CLASSIC SPREADABLE CHEESE

	Product 1	**Product 2**	**Differences**
Energy value	280 kcal	163 kcal	–41.78%
Proteins	4.5 g	9 g	+100.00%
Carbohydrates	2.7 g	4.1 g	+51.85%
- *sugars*	2.7 g	4.1 g	
Fats	**27.5 g**	**12 g**	**–56.36%**
- *saturates*	17.5 g	7.9 g	
Fibre	0.1 g	0.4 g	
Sodium	0.3 g	0.3 g	
			–2.07%
Price (Euro/kg)	**7.36**	**7.95**	**+8.02%**
Claim	Classic, fresh, no preservatives. Unrivalled taste	Light but tasty (55% less fat than the 250g Pack)	

Source: Our elaboration of the information provided on packages and nutrition labels

In Table 6 the characteristics of a fresh spreadable cheese, in its classic and "light" format, are listed. Full compliance with the legislation emerges from the analysis, since the decrease in fats is higher than the claimed 55% and the total calories are reduced by over 41 %. We would only like to point out the message in the claim. The nutrition information of the "light" product is referred to packaging formats that are different from the one on display, which could be misleading for the consumer, who, without realizing it, is likely to compare fats between different packaging and formats, and therefore between different portions of the foodstuff.

Discussion

The primary intent of Regulation 1924/2006 is to protect the European citizens and make them aware of the true nutrition value of those products, which are normally marketed, and enjoy special properties,

although they are not classified as directed to specific diets. The analysis of the nutrition claims and labels on some "light" foodstuffs has highlighted some communication gaps, related partially to the structure of the above-mentioned norm, and partially to the behaviours of the firms. As a matter of fact, in some cases, the nutrition information's full correspondence with the Regulation's requirements for the application of the "light" label does not ensure the consumer will actually receive the necessary information.

This is due to the fact that the claim is referred to one ingredient only which, although reduced, on its own does not necessarily contribute to the global decrease of the calories that can, in some cases, be increased when the reduction is offset by other, higher calorie ingredients, as it happens in the case of sodium. In some of the analysed "light" products, the reduction in calories is too small to justify the increase in the sale price.

Besides, some cases might occur of labels containing omissions, for example, a foodstuff is labelled "light" but the reasons and the ingredients that produce such lightness are not stated. Obviously, the labelling of such products is not compliant; hence producers will necessarily have to modify it.

As far as the impact of the "light" claim on nutritional education, we can say that, given the smaller calorie contribution, the "light" products can lead the consumer to increase consumption with respect to the conventional products, with negative repercussions on the eating habits, which is worrying, especially when it concerns foods for infants and children. Finally, the introduction of "light" foods in the daily diet cannot correct wrong behaviours or eating disorders that require specific treatment.

Another misleading factor is the impossibility, at the time of purchase, to compare a "light" product with the traditional one that is generally recalled on the label to highlight the reduction in calories, or know which manufacturing process makes the product lighter on the whole.

Furthermore, the use of the claims, although regulated at European level, differs throughout the EU countries, given the great variability of foodstuffs on sale, which are provided with highly diversified characteristics, but nevertheless enjoy freedom of movement thanks to the principle of mutual recognition.

A key role in guaranteeing transparency is played by the European Food Safety Authority (EFSA), which has to carry out several tests and assessments before approving the industrial claims, although the ones currently in use will remain in the market for another 15 years.

The present work was intended to be the beginning of a specific

analysis on "light" foodstuffs, although further research will be necessary to analyze in depth the consumers' perception and modes of use of the said products. In conclusion, it can be said that some nutrition labels show misuse of the claims, which implies that the goal of a healthy diet is still far to reach. Labelling of the "light" foodstuffs needs monitoring, in order to protect the consumer from misleading information, which results in making his pockets lighter, rather than his diet, confirming the Latin proverb «vulgus vult decipi, ergo decipiatur».

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