

Food Quality Labels and their Perception by Consumers in the Czech Republic

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Abstract—The paper deals with quality labels used in the food products market, especially with labels of quality, labels of origin, and labels of organic farming. The aim of the paper is to identify perception of these labels by consumers in the Czech Republic. The first part refers to the definition and specification of food quality labels that are relevant in the Czech Republic. The second part includes the discussion of marketing research results. Data were collected with personal questioning method. Empirical findings on 150 respondents are related to consumer awareness and perception of national and European food quality labels used in the Czech Republic, attitudes to purchases of labelled products, and interest in information regarding the labels. Statistical methods, in the concrete Pearson's chi-square test of independence, coefficient of contingency, and coefficient of association are used to determinate if significant differences do exist among selected demographic categories of Czech consumers.

Keywords—Food quality labels, quality labels awareness, quality labels perception, marketing research.

I. INTRODUCTION

QUALITY labels are graphic signs on products packaging, giving added value to the products. They guarantee compliance not only with current standards, but also with additional quality criteria. It provides a proof that products meet the market's needs and comply with the safety and quality characteristics defined in a corresponding certification system [1]. The placement of quality label logo on product packaging follows a strict certification process. If the product holds a recognized label, it may be considered a quality product by the buyer. The purpose of quality labels is to inform market subjects about some specific characteristic of products, to facilitate identification of food products with certified quality and to promote such products. To consumers the quality labels should be a guarantee of quality, healthy and safe products [2], [3]. There is a question, if a guarantee of food quality declared through the quality labels is important for consumers, if quality labels are recognized by consumers, how consumers perceive them, and also if quality labels are an important factor influencing consumer purchases.

According to Grunert [4], quality labels are a fuzzy category that covers many different things. They can be divided into several groups. In basic classification, obligatory and voluntary labels can be distinguished. Obligatory labels are determined by legal rules and they are compulsory for all products in given product category. They inform the product meets quality standards necessary for its introduction into the market. Voluntary labels refer to the above standard product

quality in comparison with competitors' products. The certification with these labels is not compulsory for producers. However, voluntary certification of product quality brings competitive advantage for product. Another approach differentiates general quality labels which have the guarantee for the all product quality characteristics, and specific labels focused only on particular characteristics of the product quality such as an organic origin of product or safeness of product. Based on geographical reach of labels, the regional, national, international, and global labels are recognized. According to the guarantee or sponsor of label, quality labels can be awarded by national certification bodies, by government institutions, by independent organizations (e.g. consumer associations, association of organic farmers, trade or industry associations), or by private companies. Labels can be classified also by their specification to labels of quality, labels of safety, labels of product origin, eco-labels, etc. [2, p.40], [4].

The following text is focused on food quality labels that can meet consumers in the Czech Republic. First, the characterization of labels is included, followed by the presentation of marketing research results regarding consumers' awareness and perception of selected food quality labels.

II. QUALITY LABELS SPECIFICATION

As the Czech Republic is the member of EU (European Union), the research study deals not only with national food quality labels, but also with labels relevant for EU countries. Table I consists summary and characterization of most frequent labels used in the Czech food products market. In the Czech Republic, there are four most important national labels on the food products market; only three of them, Klasa, Regional Food and Czech BIO label are included in the marketing research. The label Czech Product, guaranteed by Food Chamber of Czech Republic is a new label which was introduced into the market after marketing research study. Besides national labels, four European labels are chosen for analysis [5].








III. MARKETING RESEARCH PURPOSES AND METHODOLOGY

The main purpose of marketing research study was to identify consumer awareness and perception of quality labels used in the Czech food products market. Specific purposes are as follows:

- To identify purchasing habits of respondents when buying food,
- to identify spontaneous and aided awareness of food quality labels,
- to analyse consumer perception of quality labels

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TABLE I
SELECTED QUALITY LABELS USED IN THE CZECH FOOD PRODUCTS MARKET

Czech labels	
	The KLASA label indicates the best quality food and agricultural products from the Czech Republic. Label has been awarded by the Ministry of Agriculture Czech Republic from 2003. By 1 st January 2012 with national label KLASA were certified 1301 products from 224 Czech producers [6].
	Czech BIO label – product of organic farming, from 2005 guaranteed by Ministry of Agriculture in participation with the Association of Organic Farmers PRO-BIO. By 1 st January 2012 there were 4462 ecological entities with certification in the Czech Republic [7], [8], [9].
	Regional Food – food or agricultural product that is produced in the region and comes mainly from domestic sources. Regional food logo was introduced at 2010, can be used only on approval of the Ministry of Agriculture. In 2010 and 2011 Regional Food label were awarded for 170 regional products [10], [11].
	Czech Product, guaranteed by Food Chamber of Czech Republic. New label was introduced in the market at 11 th of May 2011. The number of products certified with this label was almost a thousand from 27 producers (by 11 th December 2011) [12], [13].
EU labels	
	EU Organic Farming - From 1 July 2010, the EU introduces a new organic logo to ensure consumer protection and common standards. The production and placement of organic products with labels and logos on the EU market follows a strict certification process that must be complied with [7], [14].
In 1992, the European Union created systems known as PDO, PGI and TSG to promote and protect food products. The complete list of products with PDO, PGI and TSG labels is available in the database DOOR [15].	
	TSG (Traditional Speciality Guaranteed) - highlights traditional character, either in the composition or means of production [16], [17].
	PDO (Protected Designation of Origin) - covers agricultural products and foodstuffs which are produced, processed and prepared in a given geographical area using recognized know-how [16], [17].
	PGI (Protected Geographical Indication) - covers agricultural products and foodstuffs closely linked to the geographical area. At least one of the stages of production, processing or preparation takes place in the area [16], [17].

usefulness and credibility,

- to identify consumers access to purchases of labelled products, and their willingness to pay higher price for labelled products,
- to attentively show an interest in getting information regarding food quality labels,
- to compare the attitudes of different demographic categories of respondents and to verify whether there are statistically significant differences.

The subject of the marketing research was food quality labels mentioned in Table I with exception the label Czech Product, guaranteed by Food Chamber of Czech Republic.

Research study was carried out in March 2011 with personal questioning method based on a structured questionnaire. Answers from 150 respondents, 51 % males and 49 % females were obtained; the age range was from 15 to 65. Respondents were selected with quota sampling method [18], [19].

IV. RESULT ANALYSIS AND DISCUSSION

The marketing research results were analysed in accordance with research purposes. To indicate whether there are significant differences among answers of selected demographic categories of respondents (based on sex, age, education, income of respondents, and their responsibility for food purchases) statistical methods were used, concretely the Pearson's chi-square test of independence, Pearson's coefficient of contingency or coefficient of association. Also coefficient of mutability (for categorical data) and ratio coefficient of differentiation were calculated to determine the degree of variability in respondent's answers [20].

A. Buying Habits of Respondents

1) Responsibility for Food Purchases

The first part of research study focuses on habits of respondents when buying food. Responsibility for food purchases is an interesting factor for the following analysis of consumers' attitudes to food quality labels. 38 % of respondents have full responsibility, 43 % have particular responsibility and 19 % have no responsibility for food purchases.

Fig. 1 represents responsibility for food purchases with respect to sex of respondents. In the Czech Republic, the different role of women and men is significant. Women usually have full responsibility for food purchases, whereas men often have a partial responsibility. The Pearson's chi-square test of independence was used. Statistic testing has confirmed the dependence between sex of respondents and their responsibility for food purchases¹, $\chi^2(2, N = 150) = 28,739$; $p < 0,001$. Value of Pearson's coefficient of contingency is 0,401.

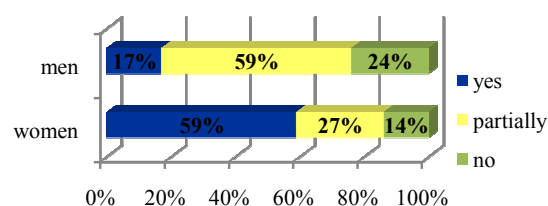


Fig. 1 Responsibility for food purchases

2) Factors Influencing Food Purchases

Respondents could indicate three most important factors which have an influence on their food purchases. They chose factors from the list of factors. As results from Fig. 2, the main factors are price and previous experience (about 80% respondents), the importance of the others is lower. Quality labels were mentioned among three most important factors

¹ Significant at 0,05 level

only by 1 % of respondents, the reason could be shortage information regarding the quality labels. However, for 24% respondents it is important the country of origin, 14% oriented himself/herself according to health benefit of product. Both of these factors can be communicated to consumers through the quality labels.

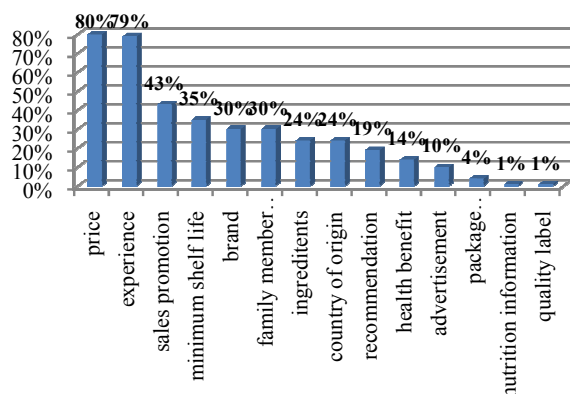


Fig. 2 Factors influencing food purchases

3) Country of Food Products Origin Preference

Some food quality labels, e.g. Regional food, Klasa label, PDO, PGI labels give to consumers the information about country of food products origin. Therefore respondents were asked if they prefer domestic or foreign food products. The country of food products origin is not important for 50% of respondents, 49% respondents prefer domestic products, and only 1% consumers have preference for foreign products. Fig. 3 represents that men have stronger preference for domestic products than women.

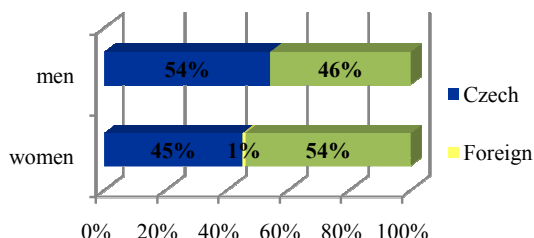


Fig. 3 Country of food products origin preference

Statistic testing has confirmed the independence between sex of respondents (as well as age and education of respondents) and country of food products origin preference² ($p > 0,05$). However, there is the dependence between respondents' responsibility for food purchases and country of food products origin preference³, $\chi^2(4, N = 150) = 15,372$; $p < 0,05$. Value of Pearson's coefficient of contingency is 0,305. As results from Fig. 4, consumers without responsibility for food purchases are not interested in the country of food

products origin, whereas respondents with partial or full responsibility have stronger preference for the domestic products.

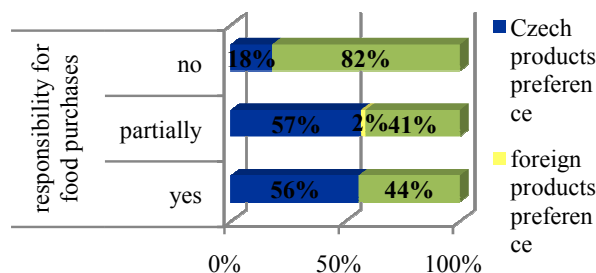


Fig. 4 Country of food product origin preference according to respondent's responsibility for purchases

B. Quality Labels Awareness

1) Attention Given to Food Quality Labels

Only 1% of respondents always give the attention to food quality labels when buying food. 61% consumers focus on quality labels sometimes, 38% never. Fig. 5 presents that women give a higher attention to quality labels, however statistic testing confirmed the independence between sex of respondents and their attention given to food quality labels when buying food⁴ ($p > 0,05$).

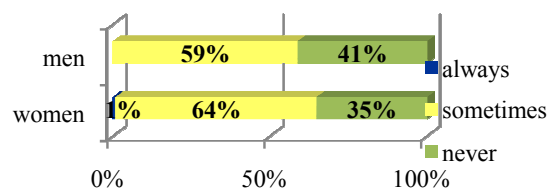


Fig. 5 Attention given to food quality labels within purchases

2) Spontaneous and Aided Awareness

Consumers spontaneously mainly know national food quality label Klasa (41% respondents) and Czech BIO label (19 % respondents). 52% respondents were not able to name some quality labels.

For testing aided awareness of the labels, their logos were shown to the respondents. Respondents were asked to mention not only whether they recognize the logo, but also to explain the meaning of the labels. Generally, the aided awareness of food quality labels is low. Fig. 6 shows, with the exception of Klasa label and Czech BIO label, more than 60% of respondents are not aware food quality labels and their meaning. High knowledge of Klasa (56 % know meaning of the label, 39 % has partially knowledge) and Czech BIO label (48 % respondents know meaning, 29 % has partially knowledge) is supported by the long-term advertising campaign. The other factor influencing greater knowledge of Czech BIO label is popularity of bio products in the Czech Republic nowadays. The worst knowledge was detected for

² Significant at 0,05 level

³ Significant at 0,05 level

⁴ Significant at 0,05 level

PDO (97 % respondents don't know it), PGI (96% don't know) and TSG label (94 % don't know). EU BIO label is not known for 79% respondents. For determination the degree of variability in respondent's answers the coefficient of mutability was calculated. Values are presented in Table II.

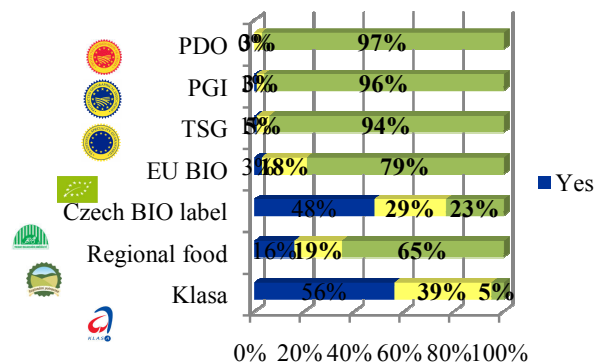


Fig. 6 Aided awareness of food quality labels

3) Food Quality Labels Promotion

Spontaneous and aided awareness of quality labels can be influenced by their promotion. For this reason, respondents were asked if they have registered some food quality labels promotion. Nearly half of consumers (45%) did not notice promotion focused on quality labels. From respondents which have registered it, 81% recalled advertising of Klasa label, 24% mentioned promotion activities regarding Czech BIO label. These results are corresponding with the fact that Klasa and Czech BIO labels have a long-term advertising support in the Czech Republic. Promotion of other labels was not registered. The promotion was more registered by women (61%) than men (50%), however statistic testing confirmed the independence between sex of respondents and registered promotion⁵ ($p > 0,05$).

TABLE II
COEFFICIENT OF MUTABILITY – AIDED AWARENESS OF QUALITY LABELS

Label	Coefficient of mutability
Klasa	0,533
Czech BIO label	0,636
Regional food	0,522
EU BIO	0,350
TSG	0,115
PGI	0,078
PDO	0,052

C. Perception of Food Quality Labels

1) Perception of Food Quality Labels Usefulness

58% of respondents perceive quality labels as a useful. There are no differences in answers according to sex of respondents. Statistic testing has also confirmed the

independence between age of respondents and perception of food quality labels usefulness⁶ ($p > 0,05$).

2) Perception of Food Quality Labels Credibility

Respondents were asked if they perceive the food quality labels as credible. Fig. 7 presents that the most credible for Czech respondents are national labels (Klasa, BIO, Regional Food). Answers regarding PDO, PGI and TSG labels are not relevant, 96% of respondents have not evaluated these labels due to their low awareness.

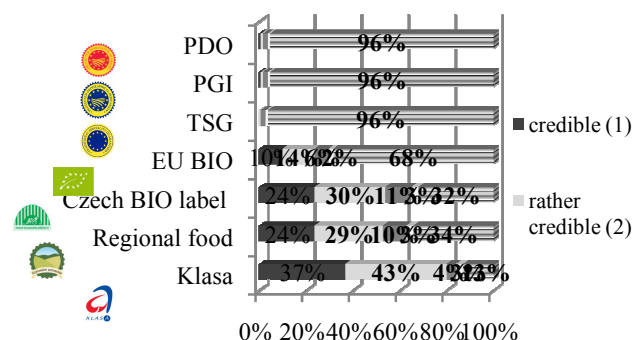


Fig. 7 Perception of food quality labels credibility

Table III shows mean, variance, standard deviation and ratio coefficient of differentiation for the perception of food quality labels credibility. The values were calculated from respondents' evaluation on a scale from 1 (credible) to 4 (incredible). Degree 0 (I cannot answer it) was not included in the calculations.

TABLE III
PERCEPTION OF FOOD QUALITY LABELS CREDIBILITY - STATISTICS

Label	Number of scale degrees	Mean	Variance	Standard deviation	Ratio coefficient of differentiation
Klasa	4	1,702	0,783	0,885	0,348
Regional food	4	1,889	1,266	1,125	0,563
Czech BIO	4	1,902	1,261	1,123	0,560
EU BIO	4	2,000	1,110	1,054	0,494
TSG	4	2,833	0,327	0,572	0,145
PGI	4	2,667	0,309	0,556	0,137
PDO	4	2,667	0,309	0,556	0,137

D. Purchases of Certified Food Products

1) Attitudes to Purchases

Because of quality labels are not known to respondents, there is only a very small percentage of consumers buying products labelled with quality labels. In the Czech Republic, nobody consciously buys products certified with PDO, PGI and TSG labels. Sometimes respondents buy products certified with EU BIO label (13% respondents). The most popular and

⁵ Significant at 0,05 level

⁶ Significant at 0,05 level

purchased are products labelled with national label Klasa (25% respondents buy regularly, 63% sometimes) and Czech BIO label (5% buy regularly, 53% sometimes). Regional food is purchased sometimes only by 25% of respondents.

With reference to these results, respondents were asked to indicate the reasons why they do not buy labelled products. The presumption that respondents don't know the labels was confirmed. 40 % respondents mentioned poor information and promotion about labels. 57% respondents consider the same quality of labelled products as non-labelled, 10 % consumers perceive labelled products as too expensive, and 3% answered that labelled products are not available in the shops. Coefficient of mutability was calculated, its value is 0,722.

2) Willingness to Pay Higher Price for Labelled Products

It can be assumed that products with certified quality will be more expensive than the others. Therefore, one of the research purposes was to find out if respondents are willing to pay a higher price for the products with quality labels. As results from research, 61 % consumers would pay more. Further, it was tested if willingness to pay a higher price for labelled products is influenced by sex, age, education or income of respondents. Willingness to pay more slightly increases with age and higher education. Fig. 8 shows that women are more willing to pay a higher price for labelled products than men.

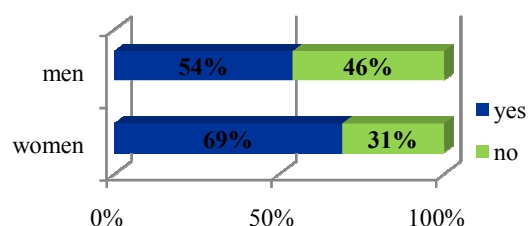


Fig. 8 Willingness to pay higher price for labelled products

There is one paradox though – the highest income group of respondents is less willing to pay a higher price for labelled products than the other income categories. Only 43% of respondents from the highest income group would pay more, whereas in other income categories it is about 70% of respondents. However, statistical testing confirmed the independence between income of respondents and their willingness to pay a higher price for labelled products. Also the differences in answers of respondents based on age, sex, and education are not statistically significant⁷, $p > 0,05$.

Further, respondents willing to pay more were asked how much more they would pay for four selected products labelled with Klasa and Czech Bio label than for unlabelled products. Fig. 9 shows following findings. If price is higher up to 10%, respondents are less sensitive to price change. If price is higher by 26 to 50 %, respondents react in price very sensitively. Price higher than 51 % is not acceptable for respondents.

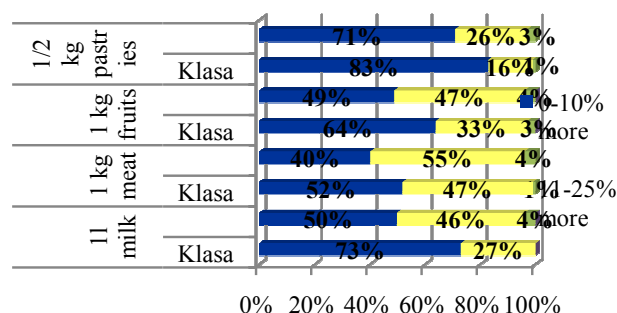


Fig. 9 Willingness to pay higher price for labelled products with KLASA and Czech BIO labels

E. Interest in Getting Information Regarding Quality Labels

Finally, respondents were asked if they would be interested in information regarding food quality labels. Results are positive, 81 % of respondents are interested in this topic. In Fig. 10 is shown interest in information regarding food quality labels according to sex of respondents. The women have greater interest about this problem. The test of association was used; the dependence between sex of Czech respondents and their interest regarding information about the labels was confirmed⁸, $\chi^2(1, N=150) = 4,20$; $p < 0,05$. Value of association coefficient is 0,185.

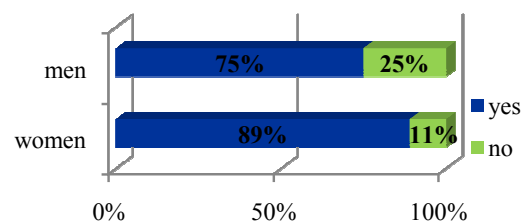


Fig. 10 Interest in information regarding food quality labels

V. SUMMARY AND CONCLUSION

Product quality is a prime criterion in gaining competitive advantage on the market. Subsequently, quality labels can be a good way for communication a high product quality to the end consumers. They demonstrate to the consumers that a product fulfils not only current standards defined by legal rules, but also additional quality criteria in accordance with market requirements. They give added value to the product and increase its competitiveness. Products certified with these labels should be perceived as a better, as having a higher quality. Ideally, quality labels should help the consumers to choose products that meet the specified standards; they should be a guarantee of quality and healthy products.

However, there is a question if quality labels fulfil their purpose to the consumers, that is, if consumers register these labels, if they perceive them as a symbol of quality products, if quality labels are trusted for consumers, and finally if they

⁷ Significant at 0,05 level

⁸ Significant at 0,05 level

have an influence on purchases. Results from marketing research show how the food quality labels are perceived by consumers in the Czech Republic.

Food quality labels are interesting matter for the Czech consumers. Unfortunately they have limited information and majority of them don't know exactly the meaning of the labels. This is the main reason why quality labels are not fully used when buying foods. Thanks to the advertising support in mass-media, well known are only Czech national label KLASA and Czech Bio label, products certified with these labels are also purchased by Czech consumers. When it comes to the European labels, only a very small percentage of customers know these labels and their meaning. However, respondents show interest in getting information regarding food quality labels. More than 60 % of respondents are also willing to pay a slightly higher price (preferably to 10% more) for labelled product than for non-labelled products.

The attitudes to quality labels according to sex, age, education and income of respondents were also analysed. Some statistically significant differences were identified, statistic testing confirmed the dependence between:

- sex of respondents and their responsibility for food purchases,
- respondents' responsibility for food purchases and country of food products origin preference,
- education of respondents and perception of food quality labels usefulness,
- sex of respondents and their interest in getting information regarding quality labels.

Generally it seems that most of food quality labels used in the Czech food products market do not fulfil their purposes. Labels are not aware to the consumers or consumers misinterpret their meaning. It is obvious that producers with certified products or sponsors of the labels need to communicate these qualities to consumers. The quality labels should be perceived not only as a sticker on the products packaging, but they should give valuable information to the consumers as well as to the other market subjects. Quality labels enhance the marketability and competitiveness of products, and also help build a better image of the product and its producer both in the domestic and the international market.

The marketing research has brought lots of findings; the research study has also some limitation. The attention was given only to the most frequent quality labels in the Czech food products market. It would be highly recommended to continue with this research study including the new labels as well as comparing the current situation in the Czech Republic with other EU countries.

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Achieving during her academic career, she was a guest at the several European universities in terms of Erasmus Teaching Programme, e.g. University of Economics Bratislava (Slovakia), ESTIG IP Beja (Portugal), Hogeschool Gent (Belgium), Universidad de Huelva (Spain), Universidad de Cordoba (Spain), Università degli Studi "G. d'Annunzio" Chieti e Pescara (Italy), Université Catholique Lyon (France).

Since 1995, she has come up with more than 30 journal and conference publications. She is also the author of a chapter in one specific book regarding product research. Her current research interests include product management on B2C market, especially branding, packaging, quality and quality labels, and consumer product testing focused on sensory analysis of food products.