

*Ludmila Nagyová,
Ingrida Sedliaková,
Mária Holienčinová
Slovak University of Agriculture in Nitra, Slovakia*

BEHAVIOURAL STUDIES OF EXTERNAL ATTRIBUTES OF BREAD AND PASTRY IN SLOVAK REPUBLIC¹

The aim of the research was to determine Slovak consumer's behaviour when purchasing and consuming bread and pastry. As a research method, was used a structured questionnaire consisting of 16 questions. The total number of respondents was 350 randomly selected respondents, from which were analyzed the answers of 291 respondents consuming bread and pastry. For a deeper analysis of the obtained results, there were set out assumptions, which have been tested with the use of Pearson's chi-square test and Cramer's contingency coefficient. As the results of the research show, the mostly preferred filling of pastries is the curd, jam and poppy filling, the preferred taste of salty bread is the crackling, corn and cheese taste, 61 % of respondents are in many cases in their purchase of bread and pastry influenced by the smell of fresh bread, 52 % of respondents need to catch the bread or pastry before their purchase, 44 % of respondents sometimes take in account the sound, which the bread makes when they are catching it, 53 % of respondents prefer the cake with more colours.

Key words: consumer behaviour, purchase, bread, pastry

Introduction

The importance of bakery products in our life and nutrition is significant. It is especially because of the fact, that they are the foundation of the food pyramid; from time immemorial, they are an important part of our diet; in the past, they have influenced the lives of our ancestors; they have become a part of the history and culture of our nation². Bread comes in all shapes, flavours and forms, and is typically made from accessible and affordable ingredients, which are important because they help fill nutritional gaps in the diet as well as help to feel full and satisfied³. However, every organism has individual requirements – the amount and time of consuming of them is individual. In general, it is recommended to consume them particularly in the morning, as a snack or in the afternoon. On the contrary the bread and pastry has to be skipped during the dinner⁴.

¹ The publication of scientific article is supported by the Slovak Scientific Agency KEGA - Project KEGA No. 010SPU-4/2013 "Content innovation of teaching subjects European consumers and consumer behavior, marketing, marketing communications and market research supplemented by theoretical and practical knowledge in the field of neuromarketing"

² J. Příhoda, M. Sluková, J. Dřízal: *Jak poznáme kvalitu? Chléb a pečivo*. 1. vyd. LIBERTAS, a.s., Praha, 2013, p.13

³ Ch. Sherwood: *The Importance of Bread*. [online] 16.08.2013 [cit. 2014-06-14] Available on the Internet: <http://www.livestrong.com/article/532026-the-importance-of-bread/>

⁴ *Chlieb náš každodenný*. [online] 28.11.2009 [cit. 2014-06-14] Available on the Internet: <http://najmama.aktuality.sk/clanok/223798/chlieb-nas-kazdodenny/>

Consumer behaviour is an integral part of the company businesses, marketers are trying to focus on the psychology of the consumer mind to see how well the consumer functions⁵. In general, consumer behaviour can be defined as the study of the processes involved when individuals or groups select, purchase, use, or dispose products, services, ideas, or experiences to satisfy their needs and desires⁶. It can be also defined as the study of how people buy, what they buy, when they buy and why they buy⁷.

The effort of each consumer is aimed to fulfil his needs. It is expected, that the bought product will be useful or the consumer will benefit from it⁸. As it is mentioned by L. Nagyová (2009), consumers are always trying to reduce the potential risk by gathering information about the company, which produces the product, about the brand, guarantees etc.⁹. Before the purchase, consumers must make a few sub decisions, which each author describes differently. While P. Kotler and K. L. Keller (2007) define five different sub decisions, J. Lendrevie and D. Lindon (1993) defines only four of them^{10,11}.

In general, it can be stated that there are five basic phases of the purchase decision making process (Figure 1). The final choice depends on many factors, such as sales conditions, previous experience, price, atmosphere in the shop, staff etc.¹².

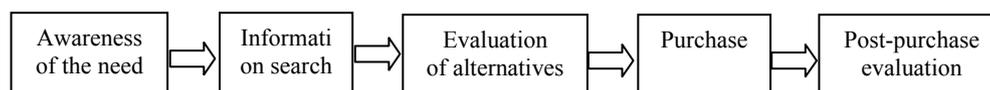


Figure 1: Decision making process
Source: KRETTNER, A. et al: *Marketing*. SPU, Nitra 2010.

The importance of the use of signs in the consumer's behaviour is reflected in the satisfaction of consumer's needs. Semiotics is said to be a science of signs and/or sign systems, which can be applied to all sorts of human endeavours¹³. According to S. Frotsher (2008), we can distinguish between the following dimensions of semiotics¹⁴:

- semiosis – creation of characters,
- cognition – recognition of characters,
- communications – mediation of characters,
- physiosemiotics – the material world,

⁵ *The Treatment Consumers Are Getting From Companies Marketing Essay*. [online] 2014 [cit. 2014-06-16] Available on the Internet: <http://www.ukessays.com/essays/marketing/the-treatment-consumers-are-getting-from-companies-marketing-essay.php>

⁶ M. R. Solomon: *Consumer Behavior: Buying, Having and Being*. PRENTICE HALL PTR, New Jersey 1995. 682 p.

⁷ Kotler P.: *Marketing Management. Analysis, Planning, Implementation, and Control*. PRENTICE HALL, New Jersey 1994. 816 p.

⁸ E. Horská: *The Consumer and Consumer Behavior*. SPU, Nitra 2014. pp.123-135

⁹ L. Nagyová: *Postoje spotrebiteľa*. SPU, Nitra 2009. pp. 80-94.

¹⁰ P. Kotler, K. L. Keller: *Marketing management*. 12th ed. GRADA PUBLISHING, Praha 2007. 792 p.

¹¹ L. Lendrevie, D. Lindon: *Mercator: théorie et pratique du marketing*. 4th ed. EDITIONS DALLOZ, Paris 1993. 514 p.

¹² E. N. Berkowitz, F. G. Crane, R. A. Kerin, S. W. Hartley, W. Rudelius: *Marketing*. MCGRAW-HILL, New York 2005. 700 p.

¹³ R. M. Seiler: *Semiology // Semiotics*. [online] 2014 [cit. 2014-06-16] Available on the Internet: <http://people.ucalgary.ca/~rseiler/semiolog.htm>

¹⁴ S. Frostcher: *5000 znaků a symbolů světa*. GRADA, Praha 2008. 259 p.

- ecosemiotics – characters in the environment,
- biosemiotics – characters of living beings,
- zoosemiotics – animals and characters,
- evolution of semiosis – the development of the process of assignment of character, phenomena and terms,
- place and time.

To all characters of semiotics perceived by disposable individual features, we can include signs perceived by sight (shape, colour), smell (scent, smell), taste (sweet, salty, bitter, sour), hearing (sound) and touch (temperature, softness, weight). Through sensory senses, we can perceive the world and its quality.

Aims and Methods

The aim of the research was to determine Slovak consumer's behaviour when purchasing and consuming bread and pastry. To obtain the necessary primary data was constructed a structured questionnaire consisting of 16 questions formulated as closed, so that respondents (total number of addressed respondents was 350 randomly selected respondents, from which were analyzed answers of 291 respondents consuming bread and pastries, Table 1) had to choose one, alternatively several options. The questionnaire was evaluated by using contingency tables, which were prepared by Excel, under which they were subsequently developed graphic representations.

Table 1: Characteristics of respondents

Category of respondents	Number	Place of respondent's residence	Number
Male	132	City	142
Female	159	Village	149
Age structure of respondents	Number	Educational structure of respondents	Number
up to 25 years	88	Primary education	32
26 – 35 years	78	Secondary education	
36 – 45 years	70	without A level	49
46 – 55 years	34	Secondary education	86
56 and more years	21	Higher education	124
Economic activity of respondents	Number		
Student	91		
Unemployed	32		
Employed	121		
Pensioner	47		

Source: Results of the research

For deeper analysis of the obtained results, were set out assumptions about the correlation between the gender of respondents and the preference of black bread, the gender of respondents and the favourite filling of pastries, the gender of respondents and the preference of salty bread flavour, the gender of respondent and the choice between two pictures, resp. the age of respondents and consumption of special bread and between the consumer information and the need of palpation of bread before the purchase. To test

the dependence were used the methods of Pearson's chi-square test and Cramer's contingency coefficient.

Research results and discussion

As it was mentioned before, bread and pastry are inherent parts of human nutrition. The aim of the research has become the determination of Slovak consumer's behaviour when purchasing and consuming bread and pastry. The total number of respondents was 291 randomly selected respondents buying bread and pastry (45 % male, 55 % female).

In terms of the age and education structure of respondents, as well as of their economic activity and place of living, main groups were represented by respondents up to the 25 years (30.24% of respondents), respondents with higher education (42.61 % of respondents), employed respondents (41.58 % of respondents) and respondents living in villages (51.20 % of respondents). Up to the frequency of purchase, most respondents are buying bread and pastry daily, resp. once in a week (31 % of respondents and 33 % of respondents) (Figure 2).

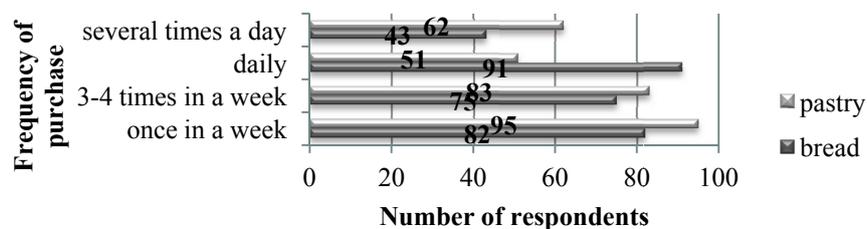


Figure 2: Frequency of purchase (in people)
Source: Results of the research

Because of the need of obtaining what does lead the Slovak consumer's to the purchase and consumption of bread and pastry, were in the questionnaire formulated questions relating to leading criteria of their purchase, preference of brown bread and pastry before the white one, preference of the no sliced bread before the sliced one, preference of special breads, impact of the smell of fresh bread on the purchase, preference of packaged bakery before the unpackaged, need of contact with the bakery before the purchase, satisfaction with the information given on the package of bought bakery products and the importance of the sound of the bought bakery products. As the results of the research shows, most of Slovak consumer's think, that the most important criteria, which lead them to the purchase of bakery products are the price, quality and freshness of given products (Figure 3). Connected to the question of leading criteria of the purchase was subsequently formulated the question of the most important factors taken into the account when buying bread and pastry. As it can be seen from the figure 3, Slovak consumer's consider as a very important factor the freshness, taste, appearance and the price of these products (66 % of respondents, 47 % of respondents, 34 % of respondents and 33 % of respondents). As the less respectively not important factor they consider the composition (almost 20 % of respondents and 11 % of respondents), colour (17 % of respondents and 10 % of respondents) and the size of package (16 % of respondents and 3 % of respondents).

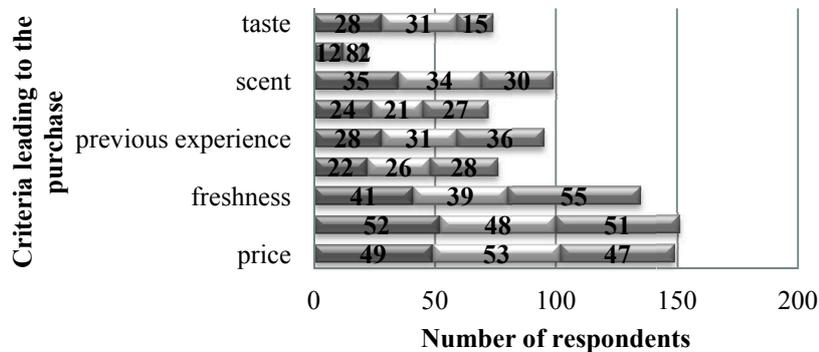


Figure 3: Criteria leading to the purchase of bread and pastry (in people)
Source: Results of the research

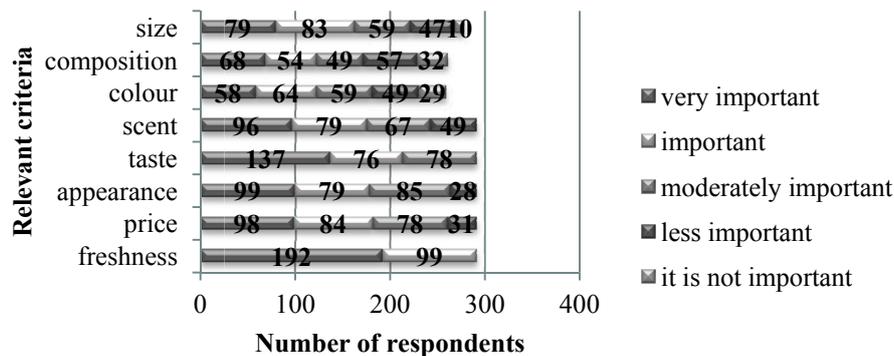


Figure 4: Relevant criteria of the purchase of bread and pastry (in people)
Source: Results of the research

From the evaluation of the questions relating to the preference of brown bread and pastry before the white one, preference of the no sliced bread before the sliced one, preference of special breads, preference of packaged bakery before the unpackaged and the satisfaction with the information given on the package of bought bakery products is clear that Slovak consumers prefer mostly:

- the brown bread and pastry (51 % of respondents), because they think that they are healthier (47 % of respondents) and because of their taste (42 % of respondents),
- the no sliced bread (43 % of respondents),
- the plain bread (65 % of respondents) and from special breads mostly the multigrain (30 % of respondents), potato (19 % of respondents), oat and sunflower bread (in both cases 18 % of respondents),
- the unpackaged bread (44 % of respondents) and
- that they are satisfied with the information given on the package of bought bakery products (68 % of respondents).

In response to the evaluation of the questions regarding to the preference of brown bread and pastry before the white one and the preference of special breads was subsequently verified the interdependence, respectively the independence between the preference of brown bakery products and the gender of respondents and the interdependence, respectively the independence between the preference of special breads and the age of respondents, which have been evaluated with the use of Pearson's chi-square test (Table 2, Table 3) and Cramer's contingency coefficient (the result of Cramer's contingency coefficient was equal to 0.045903, what can be interpreted as a very weak relationship between tested variables, resp. equal to 0.015615, what can be interpreted as almost non relationship).

Based on the results of both mentioned tests, it can be stated, that in the case of the first examined relationship the H_0 hypothesis must be on the level of significance 5 % rejected and adopted must be its alternative H_1 hypothesis talking about the interdependence between tested variables and in the case of the second examined relationship the H_0 hypothesis cannot be on the same level of significance rejected. The relationship between the the preference of brown bakery products and the gender of respondents is also reflected in the Figure 5, from which can be seen, that the brown bread and pastry is mostly preferred by female respondents.

Table 2: The relationship between the preference of brown bakery products and the gender of respondents

Preference of brown bakery products	The gender of the respondent		Together
	Female	Male	
Yes	83	83	148
No	23	38	61
It does not matter	53	29	82
TC = 10.49 □ CV = 5.991			

Source: Results of the research

Table 3: The relationship between the preference of special breads and the age of respondents

The age of respondents	Preference of special breads		Together
	Yes	No	
up to 25 years	30	58	88
26- 35 years	32	46	78
36- 45 years	21	49	70
46- 55 years	10	24	34
56 and more years	9	12	21
TC = 3.084 □ CV = 9.488			

Source: Results of the research

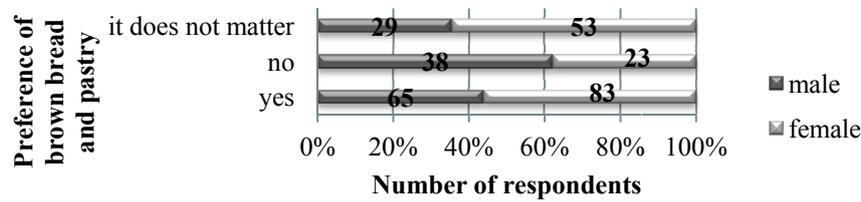


Figure 5: The relationship between the preference of brown bakery products and the gender of respondents (in people)
Source: Results of the research

Because of the need to realise how the taste, scent, touch, sound and appearance does impact the decision making process in purchasing and consumption of Slovak consumers, were in the questionnaire also formulated questions connected to these senses. The first two questions of the mentioned circuit focused on the preferred flavour resp. filling of sweet and salty bakery products. As it can be seen from figures 6 and 7, the mostly preferred filling of pastries is the curd, jam and poppy filling and the preferred taste of salty bread is the crackling, corn and cheese taste.

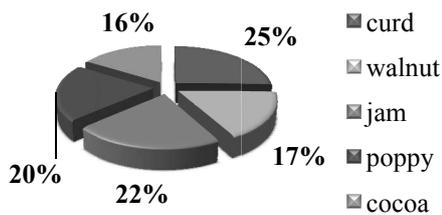


Figure 6: Preferred filling of pastries (in %)
Source: Results of the research

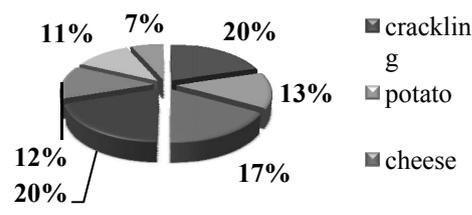


Figure 7: Preferred flavour of salty bread (in %)
Source: Results of the research

In connection with the issue of preferred flavour resp. filling of sweet and salty bakery products, there have also occurred questions relating to the relationship between the preferred filling of pastries and the gender of respondents, as well as between the preferred flavour of salty bread and the gender of respondents. For the evaluation of the interdependence, respectively the independence between the mentioned variables have been used the methods of Pearson's chi-square test (Table 4, Table 5) and Cramer's contingency coefficient based on which results the null hypothesis, cannot be on the level of significance 5 % rejected only in the case of second examined relationship (the result of Cramer's contingency coefficient were equal to 0.018392 and to 0.024551). The relationship between the preferred flavour of salty bread and the gender of respondents is also reflected in the Figure 8, from which it can be seen, that while the crackling flavour is mostly preferred by male respondents (28 % of male respondents), the corn and soy flavour is mostly preferred by female respondents (21 % and 11 % of female respondents).

Table 4: The relationship between the preferred filling of pastries and the gender of respondents

Preferred filling of pastries	The gender of the respondent		Together
	Female	Male	
curd	38	35	73
walnut	25	24	49
jam	33	30	63
poppy	39	20	59
cocoa	24	23	47

TC = 3.952 □ CV = 9.488

Source: Results of the research

Table 5: The relationship between the preferred flavour of salty bread and the gender of respondents

Preference of private label products	The gender of the respondent		Together
	Female	Male	
crackling	26	33	59
potato	17	21	38
cheese	26	23	49
corn	37	20	57
pizza	17	19	36
bacon	18	15	33
soy	18	1	19

TC = 19.772 □ CV = 12.592

Source: Results of the research

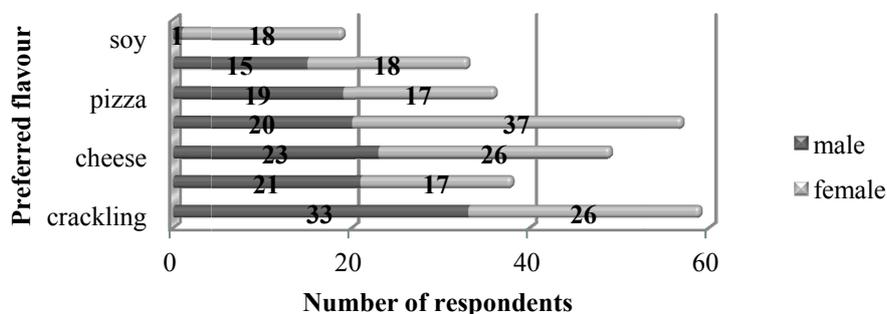


Figure 8: The relationship between the preferred flavour of salty bread and the gender of respondents (in people)

Source: Results of the research

The other questions of the mentioned circuit focused on the impact of the smell of fresh bread on the consumer's decision about the purchase, on the need of dragging of bakery products before their purchase, as well as about taking into account the sound of the bought bakery products. As the results of the research shows, Slovak consumers are in many cases in their purchase of bakery products influenced by the smell of fresh bread

(61 % of respondents), most of them do not need to catch the bread or pastry before their purchase (52 % of respondents) and most of them sometimes take in account the sound, which the bread makes when they are catching it (44 % of respondents).

Connected with the question of need of dragging of bakery products before their purchase has occurred also the question of the dependence, respectively the independence between this need of dragging and the satisfaction with the given information on the package of bakery products, which was evaluated with the use of methods of Pearson's chi-square test (Table 6) and Cramer's contingency coefficient (the result of Cramer's contingency coefficient was equal to 0.258263, what can be interpreted as a middle and also statistically significant relationship between tested variables). Based on the results of both mentioned tests, the null hypothesis must be on the level of significance 5 % rejected and adopted must be its alternative H_1 hypothesis talking about the interdependence between the tested variables. The detected interdependence is also illustrated on the figure 9, from which can be seen, that those respondents who are satisfied with the given information do not need to catch the bread before the purchase (45 % of respondents) and those respondents who are unsatisfied with the given information need to catch it before its purchase (28 % of respondents).

Table 6: The relationship between the need of dragging the bread before the purchase and the satisfaction with the given information on the package

Satisfaction with the given information on the package	Need to dragging the bread		Together
	Yes	No	
Satisfied	57	141	198
Unsatisfied	82	11	93
TC = 89.451 □ CV = 3.841			

Source: Results of the research

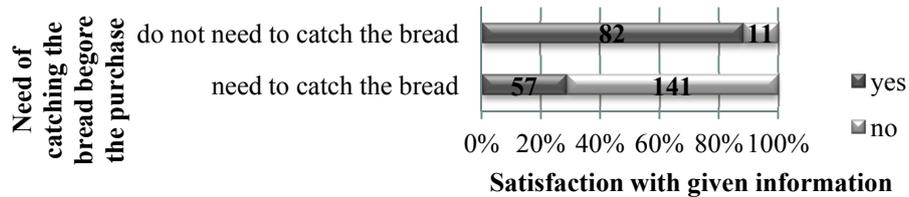


Figure 9: The relationship between the need of dragging the bread before the purchase and the satisfaction with the given information on the package (in people)

Source: Results of the research

The last question from the mentioned circuit was oriented on the importance of the bakery product's colour. Respondents had to choose from two pictures of a cake. On the first picture, there was shown a cake with one colour (one taste, for example with curd filling) and on the other one a cake with more colours (more tastes, for example with curd, jelly and poppy filling). This diversity was used to document the importance of product's colour and by it the importance of sight in the process of purchase. From the results of the research can be seen, that most of respondents (53 % of respondents) prefer

the cake with more colours, what confirms the importance of colour, but also of the taste, because from the mentioned figure can be seen, that the cake has different tastes. The mentioned result confirms also the results of research conducted by J. Dannhofer and N. Dresler (2014), according to which 87 % of respondents bought in the last year a product based on its colour¹⁵.

In connection with the last mentioned question has occurred the question of the dependence, respectively the independence between the choice of cake and the gender of respondents, which has been evaluated with the use of methods of Pearson's chi-square test (Table 7) and Cramer's contingency coefficient (the result of Cramer's contingency coefficient was equal to 0.000495979, what can be interpreted as non relationship between tested variables). Based on the results of both mentioned tests, the H_0 hypothesis cannot be on the level of significance 5 % rejected.

Table 7: The relationship between the need of dragging the bread before the purchase and the satisfaction with the given information on the package

Choice of figures	Gender of respondents		Together
	Female	Male	
Figure 9	75	62	137
Figure 10	84	70	154
TC = 0.001 □ CV = 3.841			

Source: Results of the research

Conclusion

Based on the results of the research, it can be concluded, that most Slovak consumers think that the most important criteria, which lead them to the purchase of bread and pastry are price, quality and freshness of these products, that the very important factors of their purchase are the freshness, taste, appearance and the price of these products, that they prefer the brown bread and pastry before the white one, that they prefer the no sliced, plain and unpackaged bread and that they are in general satisfied with the information given on the package of bought bakery products.

The other result of the research is, that the senses of taste, smell, touch, hearing and sight do have a high impact on the decision making process in purchasing and consumption of Slovak consumers (the mostly preferred filling of pastries is the curd, jam and poppy filling, the preferred taste of salty bread is the crackling, corn and cheese taste, 61 % of respondents are in many cases in their purchase of bread and pastry influenced by the smell of fresh bread, 52 % of respondents need to catch the bread or pastry before their purchase, 44 % of respondents sometimes take in account the sound, which the bread makes when they are catching it, 53 % of respondents prefer the cake with more colours).

Based on the mentioned results, for the practice of the bakery manufacturing enterprises, but also for companies pursuing commercial activities with bakery products, we recommend the following:

¹⁵ Dannhofer J., Dresler N.: *Vliv barev na nákupní rozhodování spotřebitele*, Brno 2014. 91 p.

1. Observe the overall look of your products, because one of the most important senses which the consumers use in their purchase is the sight.
2. Place the pastry so that it could be seen not just its content and amount, but also its colour range.
3. Set up your own bakery in stores, because as the results of the research show, that many of consumers make their decision about the bakery product's purchase based on their scent.
4. Observe on the freshness, quality, appearance, price and taste of your products, because these are, up to the results of the research, the most important criteria and factors of consumer's purchase.

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Informacia o Autorach:

prof. Ing. Ludmila Nagyová, PhD.

Ing. Ingrida Sedliaková, PhD.

Ing. Mária Holiencinová

Department of Marketing

Faculty of Economics and Management

Slovak University of Agriculture in Nitra

Tr. Andreja Hlinku 2,

949 76 Nitra, Slovakia

e-mail: ludmila.nagyova@uniag.sk,

ingrida.sedliakova@gmail.com,

maria.holiencinova@gmail.com