HONEY PURCHASE- PRESENT AND FUTURE ON THE ROMANIAN MARKET

Marian CONSTANTIN[1], Andreea Raluca CONSTANTIN[1], Raluca NECULA[1,3], Mihai-Radu COSTESCU[2]

[1]University of Agricultural Sciences and Veterinary Medicine Bucharest, 59 Marasti, District 1, 11464, Bucharest, Romania, Phone: +40213182564, Fax:+40213182888, Mobile: +40744647410, Emails: marianconstantin2014@yahoo.com, andreearconstantin@gmail.com, raluca_nec@yahoo.com
[2]University of Craiova, Romania, Email: cmihairadu@yahoo.com
[3]The Bucharest University of Economic Studies, Faculty of Agrifood and Environmental Economics, 5- 7 Mihail Moxa Street, 1st district, Postal code: 010961, Bucharest, Romania, Email: raluca_nec@yahoo.com

Corresponding author: marianconstantin2014@yahoo.com

Abstract

The topic and structure of this paper is focused on investigating a current problem of the honey market in Romania, with references to the level and the purchase volume. The analysis of the quantities of purchased honey, carried out through the calculation and interpretation of the markers during the annual dynamics of the period 2003-2014, demonstrates an increasing trend. Knowing the prospects of the purchases of honey, according to the influence factors framed within the regression equations, is interpreted in a two-dimensional form: a rise in purchases by means of a successive increase of the influence factors; a decrease of purchases when these factors diminish. Simultaneously, irrespective of the alteration (±x) of the purchase price, of the earnings, or of the expenses, the trend of honey purchase is maintained (y). At the same time, one can remark differentiated rates that result into a high level of association of the factors that influence the purchase of the product honey. In the analyses that were made, the error deviations are within normal limits, and the values of the correlation coefficient express a high level of association of the factors that influence the purchase of the product honey.

*Key words***:** *honey, market, purchase, price, regression function, residual standard deviation, forecast*

INTRODUCTION

By means of quantitatively and qualitatively differentiated forms, the market has represented the most concrete way to know food needs. In the current stage, the food needs for the product honey reflect a quantitative aspect, by the effective consumption per se, but also a qualitative aspect, connected to the consumption level which is present in the food structure [5, 6, 15]. The current paper, by means of a survey of the honey market, aims at knowing the purchase level for the product honey in Romania, and based on this, an estimation of the buying prospects [13, 15]. Actually, it is aimed to clarify the double aspect of this problem [4, 12]: *economic*, through the presence of this product on the market, which is obvious in the quantitative volume of purchases, which enables knowing the prospective level of the purchasing impulses dependent on the factorial changes of the market. Second, there is the *social* aspect, whose rising annual production and consumption markers is given by the sequence of the augmenting/diminishing factorial variables (±). As a result of the increase of the purchases demonstrates that the product honey is considered basic food in the nutritional perspective of the population, but when diminishing, it can tend to become a luxury product [6, 9]. The coordinates resulting from this paper draw the attention on the intensity of the influence factors which by augmenting/diminishing can modify the purchase demand for honey for the current stage in Romania [11, 13].

In this context, the paper aimed to investigate a honey market in Romania, with references to the level and the purchase volume.

MATERIALS AND METHODS

The topic of the level and purchase prospects of the product honey was structured methodologically, on the one hand, by presenting the current situation, on the other hand, by knowing the prospective level. The current situation was rendered by knowing the main markers which characterize the purchasing level of the product honey in reference to the purchase price, the consumption and the value of the purchased honey, the net nominal income, the expenses for purchasing food (out of the total and consumption expenses). The levels of these markers were analysed within the annual dynamics of the period 2003-2014 which were expressed in absolute values (kg./ month/ person), but also in percentages (in comparison to the year 2003) [2, 5, 7].

The data were collected from Romania's Statistical Yearbook and Food Balance Sheets, 2008-2015, provided by the National Institute of Statistics [10,16].

The prospective levels for purchasing the product honey were estimated by using functions (regression equations). Within these functions, the focus was on the interrelations between the resultative variable (y →

purchase of honey) and factorial variables (x→ purchase price, consumption and value of the purchased honey, net nominal income, expenses for purchasing food) [3, 7]. The augmenting/ diminishing variations of the factorial variable (x±5%.......x±50%) were carried out at the level of the computation basis of the year 2014 (considered the last year of analysis). Thus, according to the augmenting/ diminishing of the influence factors, the purchasing level of the product honey, expressed in kg./ month/ person was estimated [1, 5].

RESULTS AND DISCUSSIONS

In the current paper, the level and particularly the purchasing prospects of the product honey could only be presented in a qualitative sequence (represented by a quantitative quantum present in the evolution of the years), along with the qualitative aspect (rendered by the presumptive knowledge of the markers within the honey market, given by the variations of the factors framed within the regression functions/equations).

1.The evolution of the situation of the honey market in Romania.

Table 1. The evolution of the markers level that influence the honey market in Romania [2]

Specification	UM	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Honey purchase price	Ron/kg.	7.48	6.71	4.10	4.30	4.55	6.15	7.72	8.79	9.99	10.04	11.46	13.83
	% in regard to 2003	100	89.70	54.81	57.48	60.82	82.21	103.20	117.51	133.55	134.22	153.20	184.89
Value of purchased honey	Ron/ month/ person	0.1974	0.2889	0.31	0.39	0.34	0.49	0.62	0.67	0.85	0.91	1.01	1.08
	% in regard to 2003	100	146.35	157.04	197.56	172.23	248.22	314.08	339.41	430.59	460.99	511.65	547.11
Honey purchase	Kg./ month/ person	0.018	0.023	0.024	0.031	0.027	0.036	0.042	0.040	0.044	0.044	0.047	0.48
	% in regard to 2003	100	127.77	133.33	172.22	150	200	233.33	222.22	244.44	244.44	261.11	266.66
Honey consumption	Kg./ month/ person	0.029	0.034	0.038	0.042	0.045	0.049	0.055	0.057	0.058	0.061	0.061	0.061
	% in regard to 2003	100	117.24	131.03	144.82	155.17	168.96	189.65	196.55	200	210.34	210.34	210.34
Net nominal income	Ron/ employee	484	599	746	866	1,042	1,309	1,361	1,391	1,444	1,507	1,575	1,697
	% in regard to 2003	100	123.76	154.13	178.92	215.28	270.45	281.19	287.39	298.34	311.36	325.41	350.61
Total expences	Ron/month/ household	595.45	750.2	936.28	1,158.68	1,275.20	1,620.25	1,729.99	1,734.85	1,786.31	1,856.17	1,939.66	1,915.24
	% in regard to 2003	100	125.98	157.23	194.58	214.15	272.10	29.05	291.35	299.99	311.72	325.74	321.64
Total consumption expences	Ron/month/ household	449.42	615.8	720.27	815.46	946.00	1,185.33	1,275.03	1,286.29	1,320.83	1,387.90	1,441.32	1,419.55
	% in regard to 2003	100	137.02	160.26	181.44	210.49	263.74	283.70	286.21	293.89	308.82	320.70	315.86
Expenses for purchasing food (out of the total expenses)	Ron/month/ household	135.76	169.54	215.34	257.22	280.54	359.69	385.78	383.40	407.27	415.78	436.42	415.60
	% in regard to 2003	100	124.88	158.61	189.46	206.64	264.94	284.16	282.41	299.99	306.26	321.46	306.12
Expenses for food products (out of the consumption expenses)	Ron/month/ household	177.97	237.08	264.33	290.30	338.66	425.53	455.18	457.91	476.81	502.41	521.75	492.58
	% in regard to 2003	100	133.21	148.52	163.11	190.29	239.10	255.76	257.29	267.91	282.30	293.16	276.77

Source: Coordinates of the Standard of Living in Romania, The Population's Earnings and Consumption and NIS, 2003-2015

Knowing the situation of the honey market is considered mandatory, by means of the evolution of the level of the parameters specific to this market [9, 12, 13].

For the period between 2003-2014, the following are presented: the level of the markers which are expressed both quantitatively (quantities of purchased honey), and value-wise (price, expenses, earnings). The values rendered in *Table 1* emphasise the main evolutionary aspects of the analysed markers and by means of annual and also correlative comparisons, the following data result:

- the honey purchase price within the analysed period is in a sequential growth, thus year 2014 records an increase of +84.89% in regard to 2003. For the same period, the value of the honey purchased by a household highlights a much higher increase (year 2014 records this growth of 5.47 higher compared to 2003). However, simultaneously, the quantity of honey purchased by a household represents an increase of 2.66 in comparison with the same years. As a result of the rendered comparisons, the following can be noticed: the value markers of the honey purchase prices record the lowest levels; the value level of the purchased honey is represented by means of very high increase rates; the honey purchase (expressed in physical units) records moderate increases.

- in reference to the honey consumption, one can notice an increase that in 2014 is of +110.34% compared to 2003. In addition, by means of the analysis of the net nominal income, one can notice that the increase for the same period is of +250.61%. One can infer a slower increase of the honey consumption in regard to the much higher increase potential of the net nominal income;

- the expenses analysis was structured from two perspectives: on the one hand, the total and consumption expenses, where one can notice similar increases (2014 in regard to 2003, the increases are of +221.64% and +215.86% respectively). On the other hand, the expenses for purchasing food out of the total and consumption expenses where, comparing the years 2014 to 2003, one can notice slightly significant increases (of

+206.12% and +176.77% respectively). Or, out of the comparative analysis of the level of these percentages, the results are close variations, where one can notice a form of proximity of the influence of the structure of the markers of the total and food consumption expenses.

The variations with special reference to the percentages indicate existing differences within the market, with special reference to the stages of acquisition and delivery of the product honey.

2.*The variations of the influence factor and of the prospective purchasing levels within the honey market.* The prospects of knowing the evolution of the honey market represent an element of a particular necessity. Or, the level of the periods following the purchase, as an effect of the variation of the influence factors, displays a particular importance in the study of the honey market.

By using the regression functions, factors such as: price, value, purchased value, consumption, earnings and expenses (x), according to some specific variations, they influence the purchase level (y). By means of the variations rendered through augmenting/diminishing factors ($x\pm5\%$.......$x\pm50\%$), there were determined the resulting levels particularly necessary in knowing the prospective purchasing level which can be demonstrated within the honey market.

The values rendered in *Table 2* present these results, along with the used regression relations which were considered as computation basis.

Interpreting the results according to the methodological computation system (of factorial augmenting/ diminishing), the interpretative aspects which can be rendered are presented below.

(i)The value of the purchased honey and its purchase price constitute initial elements for the level of the prospective purchasing power. Thus, the results of the function which represents the influence of the value of purchased honey ($y=0.0027+0.0855x-0.0416x^2$), as well as the purchase price ($y = 0.0158 + 0.0023x$), render the trend of a relative level, by

augmenting/diminishing the quantities of purchased honey. These levels that result from the computation are between 0.045 – 0.047 and respectively 0.032 – 0.064 kg./ month/ person (which at the level of the computation basis for 2014 is represented by the adjusted value of 0.047 kg./ month/ person).

Table 2. The resulting levels in the honey purchase (y), by altering the factorial variables (x)

Relation and denomination of the variables y = resultative x = factorial	Function (regression equation) and the level of the computation basis, year 2014 y(x)	Augmenting (+) and diminishing (-) variation	UM	Level of the results of the resultative variable y according to the variations (±) of the influence factor x			
				y(x±5%)	y(x±10%)	y(x±15%)	y(x±50%)
Influence of the *value of the purchased honey (x)* on the *purchase of honey (y)*	$y(x) = 0.047$ kg./ month/person (adjusted value)	Augmenting factor x (+)	kg./ month/person	0.046	0.046	0.045	0.032 *
		Diminishing factor x (-)	kg./ month/person	0.047	0.047	0.046	0.037 *
Influence of the *purchase price* of the product honey *(x)* on the *purchase of honey (y)*	$y(x) = 0.051$ kg./ month/person (adjusted value)	Augmenting factor x (+)	kg./ month/person	0.049	0.051	0.052	0.064
		Diminishing factor x (-)	kg./ month/person	0.046	0.044	0.043	0.032
Influence of the *honey consumption (x)* on the *purchase of honey (y)*	$y(x) = 0.046$ kg./ month/person (adjusted value)	Augmenting factor x (+)	kg./ month/person	0.050	0.053	0.056	0.084
		Diminishing factor x (-)	kg./ month/person	0.043	0.040	0.037	0.019
Influence of the *net nominal income (x)* on the *purchase of honey (y)*	$y(x) = 0.049$ kg./ month/person (adjusted value)	Augmenting factor x (+)	kg./ month/person	0.052	0.055	0.057	0.078
		Diminishing factor x (-)	kg./ month/person	0.047	0.044	0.042	0.027
Influence of the *total expenses (x)* on the *purchase of honey (y)*	$y(x) = 0.046$ kg./ month/person (adjusted value)	Augmenting factor x (+)	kg./ month/person	0.050	0.053	0.056	0.088
		Diminishing factor x (-)	kg./ month/person	0.044	0.041	0.038	0.024
Influence of the *expenses for purchasing food* (out of the *total expenses) (x)* on the *purchase of honey (y)*	$y(x) = 0.045$ kg./ month/person (adjusted value)	Augmenting factor x (+)	kg./ month/person	0.048	0.051	0.054	0.084
		Diminishing factor x (-)	kg./ month/person	0.042	0.040	0.037	0.024
Influence of the *total consumption expenses (x)* on the *purchase of honey (y)*	$y(x) = 0.047$ kg./ month/person (adjusted value)	Augmenting factor x (+)	kg./ month/person	0.050	0.053	0.057	0.090
		Diminishing factor x (-)	kg./ month/person	0.044	0.041	0.038	0.024
Influence of the *expenses for food products* (out of the *consumption expenses) (x)* on the *purchase of honey (y)*	$y(x) = 0.045$ kg./ month/person (adjusted value)	Augmenting factor x (+)	kg./ month/person	0.047	0.050	0.053	0.075
		Diminishing factor x (-)	kg./ month/person	0.042	0.040	0.037	0.023

Source: Own calculations based on NIS, 2016

(ii)Regarding the honey consumption and the net nominal income, considered as influence factors (x) on the resultative factor- purchase of honey (y), the regression equations ($y = 0.0027 + 0.3794x + 5.5060x^2$ and respectively $y = 0.0110 + 0.0146x + 0.0046x^2$) render the variations by the same trends, the levels being marked by slightly augmenting/diminishing rates. The result is that, irrespective of the increase of honey consumption, and also of the earnings, a slow trend is maintained of some of the augmenting/diminishing rates of the honey purchase (the level of the computation basis for purchase in 2014, being represented by 0.046 and respectively 0.049 kg./month/person) [14];

(iii)The expenses constitute a basic element in interpreting purchases, reason for which the focus was on the influence of the factorial variables rendered structurally. References were made regarding the influences of the total expenses together with the expenses for purchasing food (x), on the honey purchase (y). The exponential form of the results of the regression equations ($y = 0.0129 \cdot 1.9533^x$ and $y = 0.0127 \cdot 20.8589^x$), render significant augmenting/diminishing rates. The result was that both the level of total expenses, and of those allocated exclusively to the food purchase influence in the same direction the trend of honey purchase (trend emerging according to the regression equations, where the level of the computation basis for purchasing, year 2014, is represented by 0.046 and respectively 0.049 kg./ month /person);

(iv)The influence of the total expenses, as well as those allocated exclusively to the food purchase (x) on honey purchase (y), by means of the results of the used exponential functions ($y = 0.0126 \cdot 2.5176^x$ and $y = 0.0105 + 0.0344x + 0.0707x^2$), reveal proportional increasing/ decreasing trends for the purchase of honey. The trends rendered by means of the succession of stages (±x), where the computation basis for the purchase of

honey (y which is represented in the regression equations whose level of the computation basis is for purchase, year 2014, is represented by 0.047 and respectively 0.045 kg./ month/ person) emphasize successive augmenting/ diminishing rates with a significant condition. It should be remarked that the last increasing stage (x → ±50%) for purchase reaches 0.090 and respectively 0.075 kg./ month/ person.

3.Substantiating the influence factors of purchase of the product honey by using

residual deviation and correlation coefficient.

The residual deviation which frames the set of used regression functions/ equations confirms the analytical validity from a methodological point of view. It is rendered by values between 0.002 and 0.006 which are considered minimum. The correlation coefficient with values between 0.862 and 0.994 expresses the certain correlative form of the resultative and factorial variables (y/x).

Table 3. The level of the residual deviation and the correlation coefficient (x/y) regarding the factors which influence the purchase of honey in Romania

Structure of the correlative functions (x/y)	Residual Deviation	Correlation coefficient (ratio)
Influence of the *value of the purchased honey (x)* on the *purchase of honey (y)*	0.001	0.994
Influence of the *purchase price* of the product honey *(x)* on the *purchase of honey (y)*	0.006	0.862
Influence of the *honey consumption (x)* on the *purchase of honey (y)*	0.002	0.988
Influence of the *net nominal income (x)* on the *purchase of honey (y)*	0.002	0.985
Influence of the *total expenses (x)* on the *purchase of honey per household (y)*	0.002	0.991
Influence of the *expenses for purchasing food* (out of the *total expenses) (x)* on the *purchase of honey (y)*	0.002	0.990
Influence of the *total consumption expenses (x)* on the *purchase of honey (y)*	0.002	0.990
Influence of the *expenses for food products per household* (out of the *consumption expenses) (x)* on the *purchase of honey (y)*	0.002	0.986

Source: Own calculation.

The study showed that irrespective of the alteration (±x) of the purchase price, of the earnings, or of the expenses, the trend of honey purchase is maintained (y) [3, 7].

The error deviations are within normal limits, and the values of the correlation coefficient express a high level of association of the factors that influence the purchase of the product honey [4, 8].

As a result of the study, the hypotheses of error distribution which are reflected in the residual distribution (error estimations) express the hypotheses of error distribution within normal limits. At the same time, the correlation coefficient (by means of the deviations from hypotheses of error distribution) is significant by the levels that were rendered, which expresses a high degree of association of the factors that influence the honey purchase.

CONCLUSIONS

The honey market is linked to demand which in the current paper highlights for Romania the level and purchase prospects of this product, where for the study that was made, the following conclusions can be emphasized:

- As a result of the analysis of the levels of annual honey purchases, one can notice an increase, which, within the market is linked to the purchase price, earnings and the consumer's expenses potential. For the analysed markers, one can remark differentiated rates which in the succession of the years are determined by the influence of the factors which manifest themselves by means of the stages of acquisition and delivery of the product honey.

- By interpreting the results issued by the computation methodological system (as a result of augmenting/diminishing rates

through the regression equations) the prospective purchasing levels of the product honey were outlined. The result was that, irrespective of the factorial alteration ($\pm x$) that was represented by the purchase price, earnings, and expenses, the same honey purchasing trend is maintained (y), but in differentiated rates which express a high degree of association of the factors that influence the purchase of the product honey.

-The hypotheses of error distribution reflected in the residual deviation, expressed the error deviations within normal limits, where the correlation coefficient was added, the result being a high degree of association of the factors which influence the purchase of the product honey [5].

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