University doctoral (PhD) dissertation thesis

EVALUATION OF HONEY MARKET FROM A MARKETING POINT OF VIEW WITH SPECIAL REGARD TO CONSUMER AND PURCHASING HABITS

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CONTENTS

1. Research objectives ........................................................................................................... 3

2. Preliminary works and applied methods .......................................................................... 6

3. Major statements of the dissertation .............................................................................. 11

  3.2. Analysing the factors influencing the consumer and purchasing habits of honey .... 11

  3.2. Analysing and evaluating the activities of honey producers ..................................... 15

4. Conclusions and suggestions .......................................................................................... 17

5. New and novel results of the dissertation ....................................................................... 21

6. Related publications ....................................................................................................... 22
1. Research objectives

Worldwide honey production has been around 1.4 million tons recently. The most important honey producer is China, followed by the European Union, the United States, Argentina and Turkey. Honey production of the world regarding continents was as follows: Asia 42%, Europe 23%, Africa 11%, America 22% and Oceania 2%.

The European Union is one of the most important honey producers in the world. Honey production in 2008 in the EU was approximately 200 thousand tons, which is 13 per cent of the world’s honey production. The EU mostly produces mixed flower honey. The most important pure honey type is acacia honey, which is primarily produced in Hungary, Bulgaria and Romania. As one third of the EU’s acacia forests is located in our country, Hungary is considered an important honey producer within the European Union. Honey production and beekeeping have long traditions in Hungary; this is one of the reasons for the relatively high number of smaller and bigger producers and companies dealing with honey production. Current trends in food consumption with special emphasis on the growing importance of healthy nutrition draw the attention to honey again. One of the main reasons is that honey is the only food of animal origin that can be consumed without almost any processing. It is not the production volume, but the quality that makes Hungarian honey important in the honey market of the world. Hungary’s share from the honey production of the world is only 1-2%; however, Hungary is considered be one of the four major producers in the EU. The Hungarian acacia honey has excellent quality, and is used to improve the quality of mixed honey, which is a very popular export product. Hungary’s
climatic conditions, its flora and the continuous acacia forests with their size - that are unique in Europe – gives a very good basis for honey production.

My dissertation focuses on the Northern Great Plain Region and the market position of special quality pure honey types as well as the situation of producers mainly from marketing point of view.

Objectives of the dissertation:

1. To analyse the production and trade of honey, food consumption including honey consumption on the basis of relevant national and international literature; to evaluate secondary data.

2. To analyse the general consumer behaviour regarding honey and consumer’s opinion on the quality of honey after the currently revealed quality problems through primary research within the research area.

3. To analyse the situation of honey producers in the Northern Great Plain Region, with special emphasis on the applied quality assurance system and their development objectives.

4. To draw up suggestions for the apiary industry in order to increase the domestic honey consumption and the structural problems of the industry based on the results of individual primary research.
The following tasks were set up in order to meet the objectives are as follows:

1. To collect and process secondary data strongly related to the topic regarding the production, trade and consumption of honey, food consumption including honey consumption, as well.

2. To conduct a survey by questionnaires in order to evaluate honey purchase and consumption habits in the Northern Great Plain Region.

3. To conduct a survey by questionnaires regarding the consumers’ expectations and knowledge on the quality of honey due to the recent quality problems.

4. To conduct a survey by questionnaires on the current situation of honey producers, with special regard to their development objectives and quality assurance.

5. To draw up conclusions and suggestions for the actors of the apiary industry based on the results of the primary and secondary research.

Actuality of the topic can be supported by the fact that there were several problems recently with Hungarian honey although it is considered to be traditionally of good quality and reliable. Although, honey originating directly from bee-keepers is usually not affected by these quality claims, mainly retail honey products were concerned, thus detailed survey of the problem is necessary.
2. Preliminary works and applied methods

In the survey, consumer and purchasing habits, the composition of producers and the characteristics of the Hungarian apiary industry have been examined. Consumers’ opinions on honey quality were evaluated separately by questionnaires. Based on the scientific methods make the results and conclusions publishable. The secondary research primarily focuses on the collection and evaluation of national and international literature on the apiary sector, especially statistical data on honey production, commerce and consumption. It is important to emphasize that the relatively “small importance” of the apiary sector made the data collection rather difficult. In order to enrich the methodology of the secondary research, the direction and extent of change through the application of dynamic correlation during the introduction of the timelines of statistical and other data bases were demonstrated. Data were collected from the international database of the Food and Agriculture Organization (FAO), CBI, national database of the Hungarian Central Statistical Office (KSH) and the Association of National Apiaries (OMME). Quantitative research methods were used during the primary marketing research data collection. Substantial part of the research was constituted by consumer, producer and retailer surveys, carried out with four different questionnaires. The most important advantage of conducting a survey by questionnaires is that the collected data can be expressed as numerical values, data collection is structured and the high number of sample allows us to draw conclusions for the whole population (HAJDÚ és LAKNER, 1999).
Applied statistical methods in the research are, as follows:

1. Frequency distribution,
2. Calculation of mean values, deviation, relative deviation,
3. Cross-table analysis,
4. Pearson’s chi-square test,
5. Kruskall-wallis test,
6. Ward’s method of cluster analysis,
7. Discriminance analysis

Consumer surveys were carried out in 2008 and 2010 and were used in order to measure the consumer and purchasing habits. Consumer preferences towards honey quality were measured in 2010. The primary objective of the consumer survey was to investigate the main attributes of consumer behaviour towards honey; thus, increasing the already existing scientific knowledge on the topic. Further objective was to find the factors that influence and motivate consumers when they buy food products, especially honey.

The focus of the two consumer surveys was different. **Questionnaires in 2008 was focused on the general consumer and purchasing habits regarding honey.** My aim was to find out whether people consume honey, what comes to people’s mind about the word “honey”, how frequently people buy and consume honey; furthermore, what are the characteristics of honey that influence consumers and how people can be motivated to consume more honey.
In the questionnaire 2010 was focused on consumers’ opinions regarding the quality of honey based on the recently revealed quality problems. The questionnaire included the following questions: what features of the product guarantee the quality of honey for consumers; what are the features of the product that influence consumer decision. Several questions concerned the importance of quality assurance. Furthermore, there were questions about consumer imaginations on honey (vitamin content, the “healthiest” type of honey). Consumers were asked to rank product features from 1 to 5 according to their importance. I tried to find out what consumers expect from honey with these questions, as well. The possible answers included packaging, nutrient content, origin, and the role of honey in a healthy diet. Consumers were asked to form opinion about their own health status in order to analyse the connection between the health status and honey consumption.

In 2010 I conducted a producer survey by questionnaires. I contacted several members of apiary associations in the researched area; unfortunately, the rate of answered queries was low again, about 70% of the questionnaires were returned.

Methods and aspects of the surveys can be seen in Table 1.
Table 1. Summary of the methods and aspects of the primary research

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Consumer survey 2008</th>
<th>Consumer survey 2010</th>
<th>Producer survey 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of data collection</td>
<td>questionnaires</td>
<td>questionnaires</td>
<td>questionnaires</td>
</tr>
<tr>
<td>Objective of survey</td>
<td>general survey on consumer and purchasing habits regarding honey</td>
<td>clarification of consumer preferences and definitions regarding honey quality</td>
<td>surveying the development plans of bee-keepers, the situation of quality assurance</td>
</tr>
<tr>
<td>Date</td>
<td>April 2008</td>
<td>June 2010</td>
<td>January 2010</td>
</tr>
<tr>
<td>Location</td>
<td>Debrecen, Nyíregyháza, Szolnok: markets, TESCO, CORA, INTERSPAR</td>
<td>Debrecen, Nyíregyháza, Szolnok: markets, TESCO, CORA, INTERSPAR</td>
<td>apiarist meetings, questionnaires sent out in mail to apiarists</td>
</tr>
<tr>
<td>Respondents</td>
<td>customers at hypermarkets and markets</td>
<td>customers at hypermarkets and markets</td>
<td>members of apiary associations, bee-keepers</td>
</tr>
<tr>
<td>Method of selection</td>
<td>simple random sampling, non-representative</td>
<td>simple random sampling, non-representative</td>
<td>voluntary sampling based on known database, non-representative</td>
</tr>
<tr>
<td>Number of questions</td>
<td>37</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>Number of evaluated questionnaires</td>
<td>821</td>
<td>386</td>
<td>139</td>
</tr>
</tbody>
</table>

Source: own research, 2008-2010.
4 hypotheses were set up regarding consumer and purchasing habits, honey quality, quality assurance and development plans of bee-keepers.

**Hypotheses:**

**H1:** I assume that the consumer and purchasing habits of honey are determined by the age, sex, income and qualification and well defined consumer groups can be formed based on consumer and purchasing habits surveys of honey.

**H2:** I assume that there is a relationship between healthy lifestyle and honey consumption.

**H3:** I assume that honey is a credence product; therefore, its origin is extremely important for the consumers and it is mainly bought directly from the producer or in the market; I also assume that the quality assurance system of the excellent quality Hungarian honey is provided from the producers’ side.

**H4:** I assume that bee-keepers are interested in development. I assume that it is related to the basic features of bee-keeping.
3. Major statements of the dissertation

3.2. Analysing the factors influencing the consumer and purchasing habits of honey

The factors influencing the consumer and purchasing habits of honey, as well as consumers’ opinion and attitudes on honey quality were analysed in 2008 and 2010. On the basis of the analysis I got a complex picture on the consumers and purchasing habits regarding honey. Based on the consumer survey in 2008 I found that the majority (38%) of consumers eat honey only occasionally and not regularly. The ratio of people consuming honey more often, even on a daily basis was very low, only 16%.

In 2008, 91% of people stated that they buy honey regularly. In 2010, 62.4%, of the respondents purchased honey occasionally, 26.9% of them on a monthly and only 4.4% on a weekly basis. In 2008, the frequency of purchasing honey was as follows: 25.3% of the respondents occasionally, 56.8% monthly, 9.3% weekly (Table 2).

Table 2. Purchasing frequency of honey based on data collected in 2008 and 2010

<table>
<thead>
<tr>
<th>Buying frequency of honey</th>
<th>In the survey of 2008</th>
<th>In the survey of 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>occasionally</td>
<td>25,3</td>
<td>62,4</td>
</tr>
<tr>
<td>monthly</td>
<td>56,8</td>
<td>26,9</td>
</tr>
<tr>
<td>weekly</td>
<td>9,3</td>
<td>4,4</td>
</tr>
<tr>
<td>never</td>
<td>8,6</td>
<td>0,3</td>
</tr>
<tr>
<td>other</td>
<td>-</td>
<td>6,0</td>
</tr>
</tbody>
</table>

Source: own research, 2008 and 2010
With the help of multivariable statistical methods I proved that the consumer and purchasing habits of honey are influenced by the demographic features of consumers (age, sex, place of residence, etc.).

4 groups with different habits and preferences through cluster analysis were created. Product features that most influence customers were also analyzed.

Cluster 1 was named “Cluster of aged committed customers”; most people in this group belong to the old generation, who are committed to their traditional bee-keeper and are usually unwilling to buy from another source. However, besides quality they find the price of the product also important. Healthy lifestyle is not very relevant for this group, but they can be motivated by emphasizing the role of honey in health preservation. Honey is probably traditionally included in their diet.

The members of Cluster 2 are the “health-conscious consumers”, including mainly middle aged urban women, who prefer to buy honey from their usual producer/retailer, similarly to the former group. For them the quality of honey is guaranteed by the producer himself. Esthetical and nice packaging is a very important product feature for them.

The members of Cluster 3 are the “price-conscious consumers”, who also buy honey in the market but they are not committed to a certain producer like people in Cluster 1 and 2 and they are rather price sensitive. They draw the inference on honey quality from the price; they could be motivated to buy more honey through discounts.

The “quality-conscious consumers” belong to Cluster 4. They prefer to buy honey in hypermarkets or supermarkets and surprisingly they are not satisfied
with the quality of honey originated directly from the bee-keeper but they are satisfied with the quality of commercially available products. They claim that knowing the producer does not guarantee the quality of the product. They rather believe in quality labels. Important product features for this group are practical, reclosable and non-drip packaging. The opposite applies to the other three groups.

The smallest deviation between the groups was found in the frequency of purchase (it is typical for all groups that honey consumption is occasional). Members of the “quality conscious” group belong to the younger generation; they like going out and entertainment is more important for them than traditional social values (family, health), they are relatively price-sensitive.

Importance of the factors that influence the consumer and purchasing habits of honey were also analyzed. Importance of certain features of honey for consumers and how they influence their consumer decisions were also evaluated in the surveys.

Table 3. How do the following features of honey influence consumption (n=821)

<table>
<thead>
<tr>
<th>Features</th>
<th>Mean</th>
<th>Deviance</th>
<th>Relative deviance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taste</td>
<td>4,54</td>
<td>0,93</td>
<td>20,57</td>
</tr>
<tr>
<td>Quality</td>
<td>3,78</td>
<td>1,07</td>
<td>28,24</td>
</tr>
<tr>
<td>Colour</td>
<td>3,42</td>
<td>1,34</td>
<td>39,42</td>
</tr>
<tr>
<td>Producer</td>
<td>2,57</td>
<td>1,58</td>
<td>61,36</td>
</tr>
<tr>
<td>Packaging</td>
<td>2,39</td>
<td>1,22</td>
<td>51,19</td>
</tr>
<tr>
<td>Size of packaging</td>
<td>2,18</td>
<td>1,13</td>
<td>51,60</td>
</tr>
</tbody>
</table>

Source: own research, 2008
The values in Table 3 show that the most important product features were taste (4.54) and quality (3.78), followed by colour (3.42), the producer (2.57), packaging (2.39) and size of packaging (2.18).

The colour and taste of honey is considered as very important product features in each consumer group. It might be resulted from the misconception that based on these features even an average consumer can decide the type and origin of honey. Certainly, this is not the case; this features of honey can only be determined in laboratory circumstances. However, I found differences in the importance of quality between the age groups (p=0.012) and sex (p=0.035). Typically, most people in the 26-35 age group considered quality as moderately important, most people in the 18-25 and 46-60 age groups found quality important, while most people in the 36-45 age group considered quality as of high importance. Furthermore, more women than men considered quality very important. The importance of packaging quality is increasing with the age. This factor was also more significant for women than for men (p=0.035). It turned out significant difference in the importance of the size of packaging. I found that this factor was most important for the older generation (p=0.007), people living in the countryside (p=0.008) and people with elementary school degree (0.042). The product feature “knowing the producer” was ranked only 4th in the list. It can be stated that especially women (p=0.000) and the older generation (p=0.000) considered it very important to know the producer.

It is often mentioned that honey is a credence product, personal contact is a key factor when purchasing honey; it is important for the consumers to know the producer. My research revealed that this factor is actually less important
for most consumers (36%). This fact is supported by another question in the
questionnaire, when I asked about the most important factors during honey
purchase; the producer (6%) and the origin of the product (4%) was ranked
only 5\textsuperscript{th} and 6\textsuperscript{th}, respectively.

Components of honey quality and the consumer opinions on these factors
were determined. According to consumers, honey quality is primarily
determined by taste, colour and consistence (physical features); 65.8% of the
respondents considered these factors as most important. These are followed
by long storage life (43.5%), which can be explained by the misconception
that crystallization is a sign of deterioration. Further important factors were
the producer (37%) and the different trade marks on the product (36.5%).

I found that the ratio of people purchasing honey on a monthly basis was the
highest among consumers with very bad health conditions (67%). In the other
categories, in all cases the highest ratio can be found at the “occasional
category” regarding the frequency of purchase.

3.2. Analysing and evaluating the activities of honey producers

Questionnaires were analyzed through current situation, typical production
volume, development needs and attitude towards subsidies among bee-
keepers in the examined area. I examined the applied subsidies and the
development plans of bee-keepers. These factors were analysed in relation to
the basic features of the apiaries and I found significant relationships
(volume, age of producer, etc.) regarding several factors. Many studies have
been conducted on the structural problems of the industry; most of them
mention the issue of aging. This problem is reflected in my samples as well; the majority of the bee-keepers in the study was above 46 years. 30% of the respondent bee-keepers was over 60 years, who will probably stop their activity within the next 10 years and the rising generation continuing their activity is uncertain.

Most bee-keepers in the research (89%) are licensed traditional small-scale producers. Bee-keepers are usually helped by family members (93%) and only 1% of them have employees. These results are supported by the fact that 40% of people working in the industry are part-time beekeepers and 37% of them consider bee-keeping as a hobby. Only 12% of respondent bee-keepers are full-time producers. Most of the respondent producers (35%) have 0-50 bee families, while 34% of them have 50-100 families. The ratio of professional apiarists (over 200 bee families) was rather low in the sample (201-300 bee families: 5%; over 301 bee families: 2%).

As regards the quality assurance of Hungarian honey, the labels of the OMME are hardly used; the use of labelling is least typical for those who started bee-keeping in the previous 5 years, bee-keepers over 61 years, the non-qualified and hobby bee-keepers. Quality seals are used by bee-keepers who have been working in the industry for over 20 years, aged 46-60, are qualified and beekeeping is a hobby for them. The special jars of the OMME are used by licensed traditional small-scale producers, who have been working part-time for maximum 5 years have no qualification and belong to the 18-30 and 61-75 age groups.
The members of the 18-30 age groups, the qualified bee-keepers and the part-time bee-keepers are most open for technological development.

The most important result of the producer survey is that honey originated directly from the producer is a “credence product” indeed, since only 15% of the respondent producers applied any quality assurance systems, while the other producers “prove” the quality of their product with subjective statements to the consumers.

It can be summarized, that the dissertation is a complementary and comprehensive work since it deals with a scientifically less-studied topic and introduces the related literature. The complex description and determination of the consumer and purchasing habits on honey can help the industry to set up an effective and common marketing strategy. By means of that, the domestic consumption of the excellent quality Hungarian pure honey types can also be increased.

4. Conclusions and suggestions

In this section I introduce the evaluation of hypotheses that were determined at the beginning of the dissertation and the research work. The four hypotheses concern the consumer behaviour on honey, the quality of honey, and the current situation and future development plans of producers. Furthermore, based on the results of the primary and secondary research suggestions for industry players, especially for bee-keepers for the increase of the efficiency of their marketing activities and for the increase of domestic honey consumption is made. The suggestions primarily serve to increase the
efficiency of their marketing activities based on the consumer and purchasing habits described in the dissertation.

**Hypotheses and their evaluation:**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Survey</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Consumer survey 2008, 2010</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2</td>
<td>Consumer survey 2008, 2010</td>
<td>Partly accepted</td>
</tr>
<tr>
<td>H3</td>
<td>Consumer survey 2008, 2010; Producer survey 2010</td>
<td>Partly accepted</td>
</tr>
<tr>
<td>H4</td>
<td>Producer survey 2010</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

As regards hypothesis H1, statistical analysis of the sample revealed that consumer behaviour on honey relates to the examined demographic parameters in some cases, while in other cases it doesn’t. However on the basis of the results, it can be stated that the hypothesis can be accepted, while there was a demographic coefficient in each of the important questions where significant difference between the groups could be set up.

Hypothesis H2 can be partly accepted, as only 20% of honey consumers associate the word “honey” with health, health benefits and illness.

Hypothesis H3 can be partly accepted, since knowing the producer was less important for most respondent consumers in both surveys; however, as regards the location of purchase, markets, directly from the producer is becoming more and more popular. The second part of the hypothesis cannot be accepted fully; as the quality of honey originating directly from the producers is supported and assured mainly by the subjective statements of the bee-keepers; furthermore, in most cases consumer opinions are based on misbeliefs.

Hypothesis H4 can be accepted, as 50% of respondent bee-keepers claimed that they are interested in developments.
Conclusions and suggestions for bee-keepers for improving the efficiency of their marketing activities on the basis of the results

1. In order to increase the low-level honey consumption, I would suggest to launch an effective and intense promotional campaign on honey.

2. The cluster analysis carried out within the surveys on honey revealed that there are different consumer requirements and behaviours. Some consumers find the origin of the product to be the most important factor, while for others healthy consumption or price is the most important.

3. I think that repositioning of honey would be reasonable, and it should be done by emphasizing its health benefits. Besides health benefits, the positioning strategy should emphasise the high quality of the product as well.

4. It has been clearly identified in connection with honey originating directly from the producers that it is reasonable to use a well-promoted quality assurance label. Although, the already established labels of the OMME are suitable for this purpose; however, the labels should be better promoted for the public and should be used more widely by producers. I would like to emphasize the importance of the fact that these labels should represent actual quality assurance, and the quality of honey originating directly from the producers should be checked more frequently.
5. My survey revealed that most consumers are not price sensitive when buying honey. On the contrary, the quality of honey is mostly judged by the price. Producers should exploit this fact by keeping the price of good-quality products high, but only in those cases when the high quality can actually be unambiguously proved to the consumers.

6. In Hungary, out of the various pure honey types, acacia and flower honey are the most popular. My survey revealed the lack of information on honey, such as the low level of knowledge on honey types and misconceptions regarding crystallization and the vitamin content of honey. Therefore, the clarification of this false information and the promotion of other pure honey types for consumers would be necessary.

7. Since the industry is quite fragmented, realisation of the efficient development and marketing strategy should be based on wide-range cooperation; joint action of the community marketing associations is necessary to increase the success of the industry.
5. New and novel results of the dissertation

1. The dissertation draws up a complex consumer and purchasing habits on honey. The dissertation supports the fact that honey purchase and consumption is related to various demographic coefficients. With the help of multivariable cluster analysis I created four clusters, which proves that different consumer behaviour types can be created in connection with honey.

2. In the dissertation I could identify the components of honey quality, as well as the product features guaranteeing quality from the consumers’ point of view. Apart from this, the dissertation supports the fact that quality assurance is not well established on the producer side and is based on subjective factors.

3. I analysed the attitude of bee-keepers in the examined region towards subsidies and investigated the “popularity” of the applied forms of subsidies. I found that the most popular subsidies are those that help producers maintaining (subsidies for medicine and sugar) and increasing (increasing the number of bee families) the production volume. In accordance with the above facts, another finding of the dissertation was that the development plans of producers mainly focusing production volume rather than technological development.
6. Related publications

PEER-REVIEWED FOREIGN LANGUAGE PAPERS PUBLISHED IN HUNGARY


PEER-REVIEWED FOREIGN LANGUAGE PAPERS PUBLISHED ABROAD


PEER-REVIEWED FOREIGN LANGUAGE PAPERS IN CONFERENCE PUBLICATIONS PUBLISHED ABROAD


PEER-REVIEWED PAPERS IN HUNGARIAN JOURNALS


PEER-REVIEWED PAPERS IN ABSTRACT IN CONFERENCE PUBLICATIONS PUBLISHED ABROAD


HUNGARIAN LANGUAGE CONFERENCE PUBLICATIONS WITHOUT FOREIGN LANGUAGE ABSTRACT PUBLISHED IN HUNGARY


25
FOREIGN LANGUAGE FULL PAPERS IN CONFERENCE PUBLICATIONS PUBLISHED IN HUNGARY


HUNGARIAN LANGUAGE RESEARCH REPORT