ANALYSIS OF PRODUCTION AND SALES OF BEE PRODUCTS IN THE NORTH OF TRANSYLVANIA

ANALIZA PRODUCȚIEI ŞI A VÂNZĂRILOR DE PRODUSE APICOLE ÎN TRANSILVANIA DE NORD

CRISTINA BIANCA POCOL[1]

[1]University of Agricultural Sciences and Veterinary Medicine Cluj Napoca, Romania, Faculty of Horticulture; pocolcristinabianca@yahoo.com

Abstract: *This study is part of the research within the postdoctoral project "A technical and economic analysis of the beekeeping in the North West Region of Romania in order to ensure the sustainable development of the beekeeping chain". Production in the beekeeping sector is dependent on climatic conditions. Thus, in 2010, as a result of adverse weather conditions there can be observed a decrease of the average production for all bee products, especially honey. Due to the decrease of the production, the sales diminish as well, both in structure, volume and value. However, beekeeping is a more and more attractive activity, owning mainly to the policies that sustain the beekeeping industry.*

Key words: *production, sales, bee products, development, Northern Transylvania*

INTRODUCTION

Among the EU countries that enjoy a substantial growth of the beekeeping sector, there is also Romania, which ranks fifth among the top honey producers in Europe, with a number of bees which increased from 888 000 families in 2005 to 1,275,000 families in 2010 and production of honey that has increased from 17,704 tons in 2005 to 21000 tons in 2011 (National Beekeepers' Association, 2011). This increase was due to agricultural policies meant to support the beekeeping sector, policies established by the European Commission and the Romanian Government, through the National Beekeeping Programme and National Rural Development Programme (Pocol, C., 2011). The self-supply rate with honey

within the European Union is quite low (about 60% in 2009), Romania and Bulgaria having, after the accession, a significant contribution to the increase of this rate from 10% to 60% (Pocol C ., L. Al. Mărghitaş, 2010). Although in the long term, some Eastern European countries such as Romania, Hungary and Poland have recorded increases in the production of honey, on short-term, considerable fluctuations in the production can be observed, particularly due to weather conditions and bee diseases.

As regards the price of honey, it has fluctuated dramatically in the international market since 2003, due to the embargo on imports of Chinese honey to the European Union, which lasted until 2004. Low demand coupled with high offer lowered the price of honey in 2005. Afterwards, the price of honey increased starting from 2006 and continues to increase until the present. This was due to the collapse of the colonies of bees in certain regions (America, Southern Europe) and low temperatures that affected production (www.cbi.eu). The research literature demonstrates the relationship between the price of honey and certain factors such as: production, stocks, imports, demand for domestic consumption, demand for export and marketing actions (Shafer, C., 1998). The changes that occurred regarding the offer of honey and other bee products are higher than those that occurred related to the demand for these products. While production is predetermined, stocks and imports influence prices and in turn are influenced by prices. The relation of determination is reciprocal. High prices determine the increase of imports, while moderate prices reduce them. Other researches examine the influence of certain qualitative factors on honey consumption and on the price (M. Ghorbani, N. Khajehroshanaee, 2009). The results of these studies demonstrate that packaging, smell, consistency, range, dark colour, sweetness and the existence of residues are qualitative factors, determinants of the price of honey. American researchers analyze the role that beekeeping plays in developing regional supply chains. The solutions identified by them in order to increase honey production are based on the promotion of best beekeeping practices, providing technical assistance, organizing training courses for beekeepers and developing marketing strategies to encourage local and regional consumers to buy local honey (Sawyer S., A. Zipparo, 2011).

The present paper analyzes the production and sales of bee products in the Northern Transylvania region, as the study of these issues is a part of

a complex postdoctoral research project entitled *"A technical and economic analysis of the beekeeping in the North West Region of Romania in order to ensure the sustainable development of the beekeeping chain"*.

MATERIALS AND METHODS

The research material is represented by the data base regarding the technical and economic aspects of beekeeping, undertaken in Northern Transylvania, in the counties of Bihor, Bistrita Nasaud, Cluj, Maramures, Salaj and Satu Mare. The data derived from interviews with 290 subjects (beekeepers) in early 2011. The type of sample was probabilistic, stadial, with stratification according to the counties under study and the number of colonies of bees owned by beekeepers.

The research method used was the survey and the work tool was the questionnaire. Within this questionnaire, there was a section entitled "Production. Costs. Capitalization" that sought to identify the quantities produced in 2009 and 2010 (Table 1), the quantities sold and the prices (Table 2). The data were processed using SPSS program, undertaking both a primary analysis and a secondary analysis by applying correlations between the items below and certain socio demographic questions.

Table 1

Quantities of bee products obtained in 2009 and 2010

Product	Did you obtain bee products in 2009?		If yes, in what quantity?	Did you obtain bee products in 2010?		If yes, in what quantity?
	yes	no		yes	no	
1. Honey	1	2	_____ kg	1	2	_____ kg
2. Pollen	1	2	_____ kg	1	2	_____ kg
3. Propolis	1	2	_____ g	1	2	_____ g
4. Royal Jelly	1	2	_____ kg	1	2	_____ kg
5. Wax	1	2	_____ kg	1	2	_____ kg
6. Venom	1	2	_____ g	1	2	_____ g

Source: Project PD no. 149/2010

Table 2

Quantities of bee products sold and prices in 2009 and 2010

Product	Quantity sold in 2009	Price per unit (lei /kg or g) in 2009	Quantity sold in 2010	Price per unit (lei /kg or g) in 2010
1. Honey	_____ kg	_____ lei / kg	_____ kg	_____ lei / kg
2. Pollen	_____ kg	_____ lei / kg	_____ kg	_____ lei / kg
3. Propolis	_____ g	_____ lei / g	_____ g	_____ lei / g
4. Royal Jelly	_____ kg	_____ lei / kg	_____ kg	_____ lei / kg
5. Wax	_____ kg	_____ lei / kg	_____ kg	_____ lei / kg
6. Venom	_____ g	_____ lei / g	_____ g	_____ lei / g

Source: Project PD no. 149/2010

RESULTS AND DISCUTIONS

Production analysis

Of the total sample analyzed, 80% of beekeepers produced honey in 2009 and 2010, 50% produced propolis and about 30% produced pollen. Due to unfavourable weather conditions in 2010, there was a certain involution of the production of honey and other products considered secondary (pollen, propolis, royal jelly, beeswax and bee venom). Applying a correlation between the bee products obtained in 2009 and 2010 and beekeepers' experience, it can be observed that 56% of experienced beekeepers (less than 5 years) produced honey in 2010. Beekeepers with average experience produced at a rate of 90% and those with great experience, at a rate of 80%. Propolis and wax are products obtained by beekeepers with significant experience (15 years) rather than those with reduced experience. Pollen is mainly produced by beekeepers with average experience (6-15 years). The average yield of honey/apiary decreased from 1043 kg in 2009 to 467 kg in 2010. Applying a correlation between the decrease in honey production and beekeeper's age, the most drastic decline in production can be observed in the case of beekeepers over 70 years (Fig. 1). A possible explanation could be that obtaining high yields is possible by

practicing pastoral apiculture. Or, if those aged under 50 years cover an average of over 200 km, those over 70 years do not travel with the hives for more than 100 km.

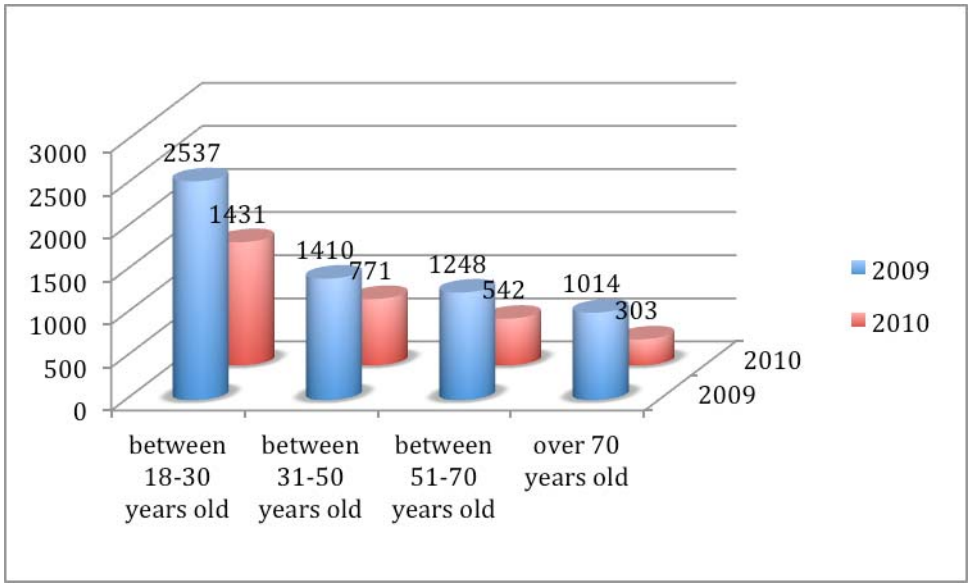


Figure 1: Correlation between average honey production (kg)/apiary and beekeepers' age

Fluctuations were observed concerning the production of propolis as well, registering a decrease from 2492g / apiary in 2009 to 2102g / apiary in 2010. In the case of other products (pollen, wax) there were no significant decreases. However, a certain increase is observed regarding the production of royal jelly, as this product has become increasingly attractive on the market of products considered to be beneficial to health.

Sales analysis:

At the level of an apiary, the sales reached about 9,240 lei in 2010 that is 62% of the value of sales in 2009 (14,900 lei).

The structure of sales of bee products obtained in the beekeeping sector in Northern Transylvania region is presented below (Table 3 and Table 4):

Table 3

Sales structure in 2009

	Average quantity sold / apiary	**Average price (RON) /UM**	**The average sum obtained (RON) / apiary**	**% of total sales**
Honey (kg)	1065	12	13.181	89%
Pollen (kg)	39	30	1.150	8%
Propolis (g)	1162	0,22	252	2%
Royal Jelly (kg)	0,05	438	22	0,1%
Wax (kg)	12	23	277	2%
Venom (g)	45	0,20	9	0,1%
Total			**14.891**	**100%**

Table 4

Sales structure in 2010

	Average quantity sold / apiary	**Average price (RON) / UM**	**The average sum obtained (RON) / apiary**	**% of total sales**
Honey (kg)	438	16	6.954	75%
Pollen (kg)	35	52	1.821	20%
Propolis (g)	771	0,25	190	2%
Royal Jelly (kg)	0,05	344	16	0,2%
Wax (kg)	10	24	252	3%
Venom (g)	44	0,20	9	0,1%
Total			**9.241**	**100%**

CONCLUSIONS

The decline in sales of bee products in 2010 compared to 2009 is determined by a complex set of factors. A first conclusion, anticipated ever since the analysis of the production, refers to the massive decrease in the sales of honey, due to low production. Although there is an increase in the average price of honey from 12 to 16 lei, the quantity sold, on average, decreased by almost 60%. As regards value, the average of honey sales fell by half in 2010 compared to 2009.

The amount of propolis sold decreased as well from 1160 g /apiary in 2009 to 770 g /apiary in 2010. This decline resulted in a lower value of propolis sales with about 25% in 2010 compared to 2009.

If sales of honey and propolis decreased, sales of pollen slightly increased, mainly for reasons related to price / measuring unit. The data show an increase in the price obtained per unit from 30 lei in 2009 to 52 lei, in 2010. Due to this growth, although the average amount decreased slightly, the value obtained from sales increased by almost 60%.

Sales of wax were approximately the same in 2010 as compared to 2009. Sales of royal jelly and venom are rather exceptions than systematic practices among beekeepers in Northern Transylvania region.

Sales structure changed in 2010 as compared with 2009, mainly as a result of the decrease in sales of honey and the increase in sales of pollen. Therefore, if the honey sales represented about 90% in 2009, these sales represented only 75% in 2010. Instead, the share of pollen sales doubled in 2010 (20%) as compared to 2009 (8%).

ACKNOWLEDGEMENTS

This work was a part of a research project supported by a grant from CNCSIS, PN II. Romania. The title of the research project is “A technical and economic analysis of the beekeeping in the North West Region of Romania in order to ensure the sustainable development of the beekeeping chain”, Contract no. 149/2010.

REFERENCES

1. **GHORBANI M., N. KHAJEHROSHANAEE,** 2009, The study of qualitative factors influencing on honey consumers demand: application of hedonic pricing model in Khorasan Razavi Province, Journal of Applied Sciences 9 (8): 1597-1600.
2. **POCOL C. B.,** 2011, Sustainable policies for the development of beekeeping in Romania, Scientific Journal Warsaw University of Life Sciences – SGGW PROBLEM*S* OF WORLD AGRICULTURE, Polonia, Volume 11 (XXVI), Number 3, 107-115.
3. **POCOL C. B., L. AL. MĂRGHITAŞ,** 2010, Tendințe naționale şi internaționale privind producția şi consumul de miere, Editura AcademicPres, Cluj Napoca, 11-15.
4. **SHAFER C.,** 1998, Can we forecast the price of honey?, Journal of the Texas Beekeepers Association, 5-7.
5. **SAWYER S., A. ZIPPARO,** 2011, Farm to plate strategic plan, Food production: honey, www.vsif.org, 10-11.
6. ******* National Beekeepers' Association, 2011
7. ******* www.insse.ro, Anuarul Statistic al României 2011
8. ******* www.cbi.eu, CBI Market Information Database, Prices and price developments for honey