

Types of Beekeeping Practiced in the North West Region of Romania - Advantages and Disadvantages

Cristina B. POCOL¹⁾, Anca A. POPA²⁾

¹⁾ University of Agricultural Sciences and Veterinary Medicine, Faculty of Horticulture, Calea Mănăştur 3-5, 400372, Cluj-Napoca, Romania; pocolcristinabianca@yahoo.com.

²⁾ University of Agricultural Sciences and Veterinary Medicine, Faculty of Animal Science and Biotechnologies, Calea Mănăştur 3-5, 400372, Cluj-Napoca, Romania; popa_aurora22@yahoo.com.

Abstract. An essential component of the bee chain analysis in the North West Region is the comparison of different production practices: stationary beekeeping versus pastoral beekeeping; conventional beekeeping versus organic beekeeping. In the area of scientific research at a national level these issues have not been considered so far. The research methods used for these comparisons were the survey and the focus group. Following the quantitative and qualitative data analysis, the advantages and disadvantages of the above mentioned beekeeping practices were identified: stationary beekeeping generates products designed primarily for use in the household or within the close network of friends, does not require significant resources, but the productivity of the hives is lower. By practicing pastoral beekeeping instead, a higher productivity is obtained, but the expenses for the travel are high and the risks associated to moving the hives are significant. In terms of the comparison between the economic efficiency of conventional versus organic beekeeping, although 82% of the respondents agree at the declaratory level with the principles of organic beekeeping, this type of beekeeping it is not yet sufficiently attractive for several reasons: bureaucracy, the difficulty of selling the products within the country, very expensive periodic inspections, higher costs and greater risks. The practical implications of the present research are meant to provide solutions to beekeepers from the North West Region and not only, in order for them to choose the most efficient production techniques, consistent with the three components of sustainable development: the economic, social and environmental component.

Keywords: beekeeping, stationary, pastoral, conventional, organic

INTRODUCTION

The importance of beekeeping is due, on the one hand, to the nutritional and therapeutic value of the products obtained from the practice of this activity (honey, pollen, propolis, royal jelly and bee venom), and on the other hand, to the pollination services, because approximately 80% of the crops are pollinated by bees (Dirina and Bugina, 2012). Because direct and indirect outputs mentioned, beekeeping is a profitable branch of agriculture. Profitability of this activity was analysed by many researchers. Thus, the research conducted in Lithuania (Dirina and Bugina, 2012) assumes that beekeeping industry is a profitable branch of the national economy. The results of this research indicate intensive production as more profitable than the extensive one – the costs of which are higher, while the income resulted from intensive production are much higher, being able to cover the production costs. Comparative studies regarding the profitability of two types of beekeeping - traditional and semi-modern - were conducted in Cameroon (Matsop *et al.*, 2011), the results showing neither significant differences in terms of efficiency, neither in terms of total income, net profit, or annual profitability (1.168 in the case of traditional farms, 1193 in the case of semi-modern farms). Other types of beekeeping compared, in terms of costs, in literature, are

the conventional and the organic beekeeping. Production costs for organic beekeeping are distinctly superior to those of conventional beekeeping; hence the need to increase the productivity and the number of hives owned by beekeepers, so that organic beekeeping becomes a profitable business (Güemes-Ricalde *et al.*, 2006). Croatian scientists (Stephen *et al.*, 2004) compare the profitability of beekeeping as practiced by hobbyists, part-time and full-time beekeepers; an increase of the organic beekeeping in relation to the conventional one being expected at the time. More recent studies, performed in Croatia (Lušić *et al.*, 2011), indicate the fact that organic beekeeping is one of the least represented areas of organic agriculture in Mediterranean countries. The economic efficiency of beekeeping is analysed also in Serbia, the results of the research showing that an increase of the efficiency would be possible if labour costs were reduced by choosing the most appropriate beekeeping technologies and by means of better spatial planning of the pastoral beekeeping. The effects of bee farm size and of the diversification of the production as to the profitability were studied also in Canada (Urbisci, 2011). Thus, the number of products and services provided by a bee farm is the main explanatory factor of profit/bee family variations, lack of equipment and skills, being the main barrier to oppose diversification.

The purpose of this research is to compare, based on quantitative and qualitative methods, the different practices connected to beekeeping production in the North-West of Romania: stationary beekeeping versus pastoral beekeeping; conventional beekeeping versus organic beekeeping. In the area of national scientific research, these issues have not been considered so far.

MATERIALS AND METHODS

Comparative analysis of different production practices concerning beekeeping was one of the objectives of the research regarding the techno-economic analysis of beekeeping in the North-West of Romania, in order to provide sustainable development of beekeeping chain. The research, displaying both a quantitative and qualitative component, was conducted during 2010-2012.

The quantitative data was obtained using sociological survey on a probabilistic, stratified and stadial sample of 290 beekeepers in the North-West Region of Romania, according to the studied counties in the region and to the number of bee families kept by the apiarists. Part of the questionnaire was related to the practiced type of beekeeping, the respondents having to choose, on the one hand, between conventional and organic beekeeping, and on the other hand between stationary, pastoral and mixed beekeeping.

Due to the fact that quantitative data could only provide a numerical picture of the types of beekeeping practiced in the region, the quantitative research was followed by a qualitative method based on focus groups and individual interviews. Research targeting the way technology and organizational innovation, in the field of beekeeping, can respond to global consumer's demand was conducted in Argentina (Verasay *et al.*, 2010). As it was considered that they may clarify certain concepts and make more accurate assumptions, the adopted research techniques remained the qualitative ones. Thus, a number of six focus groups of apiarists from Cluj, Bihor, Satu Mare, Maramures, Bistrita Nasaud and Salaj counties, were created. The apiarists were members of at least one producers association. The moderation grid included, beside the aspects regarding the advantages and disadvantages of various beekeeping practices and aspects pertaining to defining the professional beekeeper, types of bee products, income and expenses, marketing bee products and association. The creation of the focus groups was possible with the support of the regional associations of beekeepers. It should be noted that this study focuses on the results of qualitative research.

RESULTS AND DISCUSSIONS

The quantitative research points out that of the 290 investigated apiarists, 43% practice stationary beekeeping, 37% practice mixed beekeeping and 20% pastoral beekeeping, experience being the main factor to guide the apiarists from stationary beekeeping - up to 5 years of experience - towards mixed beekeeping - over 15 years of experience (Pocol, 2011). Compared to the quantitative research that provides only data regarding the percentage of each category of the total population of apiarists, the qualitative research identifies the advantages and the disadvantages of each practice:

The apiarists practicing a stationary beekeeping obtain products destined for consumption, especially in their household, or to be sold within their network of acquaintances. According to the opinions conveyed by the participants within the focus groups, the advantages of this type of beekeeping are that it does not require a large amount of resources and the risks concerning bees' health are lower than when it comes to the pastoral practice.

The disadvantage lies in a lower productivity of the hives and in the necessity to maintain a relatively small number of hives compared with the pastoral beekeeping, because the range of the bees is not large enough. Another risk related to stationary beekeeping is the overcrowding: if there are too many families within a beehive, the excess of nectar cannot be provided. From the producers' statements it results that the optimal situation for a stationary apiary means 30 families for a medium harvest beehive. The solution to overcrowding is either switching to pastoral beekeeping or practicing subsidized cultures, consonant with the rest of the apiarists because the productivity of the hives depends directly on the existing cultures. If throughout the Nordic countries, the number of families for a beehive is maximum 12, the producers state that in Romania there are areas where hundreds of families share the same beehive.

The apiarists practicing a mixed type of beekeeping alternate the periods of stationary beekeeping with those of pastoral beekeeping, and usually capitalize both products within their own network, their own points of sales and even to the producers.

The main advantage of pastoral beekeeping is the profitability, due to the higher productivity of the hives, because the pastoral beekeeping allows the development of the number of hives, the maximum exploitation of the temporary beehives, and culture orientation. Among the disadvantages it can be mentioned: the high travel costs, the risks that accompany the moving of the hives, bees getting infected with various diseases they might get from other hives in the field, overcrowding of bee families in some areas, the danger of swarming because of adverse climatic phenomena (rain, wind), loss of families if the cultures had been exposed to radiation, acid rain, chemicals or genetically modified cultures, any delays that may occur (a delay of one or two days may cause the loss of half of the production).

Apiarists that practice pastoral beekeeping only are more common in Salaj area. The reasons for which they practice pastoral beekeeping since early spring are related to overcrowding of the beehives in the localities of origin, to the destruction of forests because of the flocks. Those who practice exclusive pastoral beekeeping form a special segment that cannot be distinctly characterized by the socio-demographic variables, their determinants being related rather to the features of the residential environment.

Reportedly, the participants involved with the focus groups should be distinguished from breeders and exploiters of bees: there are apiarists who only produce honey, and others who just keep bees, but most of them do both, but using different technologies. The issues

raised by the producers, that irreparably affect the health of the bees are: the degraded composition of the water for bees, the noxious chemicals used for seed treatment, natural pesticides, synthetic food the bees use during winter and the genetically modified plants.

With regard to ecologic beekeeping versus conventional beekeeping, 82% of the respondents agree with the ecologic method to produce organic honey, as the average age and experience in beekeeping influence the acceptance of the principles of the ecologic beekeeping (Pocol and Popa, 2011). Among those who agree with these principles, only 43% are aware of the costs involved in organic beekeeping.

For some of the participants involved with the focus groups (those with fewer bee families), the organic beekeeping is not yet sufficiently attractive for several reasons:

1. Bureaucracy - bills and certificates required to obtain formal documentation;
2. Difficulty to sell the products throughout the country (direct sale to consumers) as being more expensive, these are harder to sell; the products currently obtained, according to the producers' opinions, already have most of the qualities an ecologic honey product should have. Moreover, the majority stated, that they meet at least 90% of the requirements in order to obtain a certificate for organic beekeeping, lacking only formal certification;
3. Very expensive recurrent inspections: in the case of a small number of bee families the profit obtained from selling ecologic products does not cover the inspection fees. These inspections are only subsidized for the three-year period, the conversion from traditional to ecologic beekeeping requires.
4. The difficulty to treat the bees: the ecologic beekeeping prohibits the use of antibiotics, but in the event of certain diseases, the producers say that other treatments do not have any effect, and the risk of losing the bees is quite high;
5. Higher costs and greater risks;
6. The restrictions enforced upon the practice of the activity: the more frequent change of equipment, replacing it with more modern one, the paint needed for the hives, quality of the space where pastoral beekeeping takes place (certificate from the town hall stating that within a certain radius there are not genetically modified crops, highways, garbage ramps).

Among the advantages of organic beekeeping, the participants of the focus group mentioned the following: obtaining a wholesale price, 15% -30% higher than the one of the traditional products from the processor and obtaining a higher price for the products sold directly for exportation.

CONCLUSION

A comparative analysis of the advantages and disadvantages of beekeeping practices encountered in the North-West region can be achieved in terms of economic profitability. From this point of view, mixed beekeeping proves to be most cost-effective due to the high productivity of the hives.

Although, in the case of mixed beekeeping the costs are higher than for stationary beekeeping, the income derived from selling high honey production obtained by means of mixed beekeeping covers not only these costs, but also the profit. Ecologic beekeeping is justified in terms of profitability only when it comes to high productions, a common conclusion with other research (Güemes-Ricalde *et al.*, 2006). The export sales, where ecologically produced honey is sold at a lower price is still an effective method of making organic beekeeping more efficient.

A full analysis cannot ignore the other aspects of a sustainable development, namely the environmental and social component. From this perspective, stationary beekeeping presents certain advantages concerning the bees, thus less exposed to diseases.

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. It is also a part of the USAMV Grant entitled “Study of perceptions and consumer behaviour of honey and other bee products in order to improve the management and marketing strategies in the beekeeping sector, to influence the public policies in the field and to increase honey consumption in the North West Region of Romania. Contract no. 1215/08/06.02.2012.

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