SITUATION AND PERSPECTIVE OF THE HUNGARIAN BEE-KEEPING

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S u m m a r y

Apiculture constitutes a sector of Hungarian agriculture, which has not been big yet perspective in respect of its development possibilities. The ratio of apiculture shared 0.5 percent of the gross production value of agriculture, and 1.03 percent of that of animal husbandry in 2000. Due to its natural conditions the whole territory of Hungary is suitable for apiculture. The latter is a complex activity: along honey production, the pollinating activity of bees must not be neglected (positive externality). The participants of the sector are mainly small-scale producers. Concentration due to economic reasons will be increased in the future. Concerning the quantity Hungary cannot compete with large honey exporting countries therefore Hungary has to penetrate the EU honey markets with highly processed and branded products.

Keywords: honey production, cost-income situation, production structure, honey export, EU accession, service organisations.

INTRODUCTION

According to FAO statistics, the world honey production was 1 262 thousand metric tons in 2001. Global output increased by 30 percent from 1979 to 1989, which subsequently stabilised in the following decade, with an increase of 3 percent from 1989 to 1999. The world's major producing region is Asia, which is followed by Europe, Northern and Central America. In the context of the world trade, China is the major exporter and the European Union is the major import market.

The honey production of the world becomes more concentrated from step to step. Either the price competition or the production and the trade of the special honey products make influence on market. Traditions, natural and economic conditions reflect wide variations of honey in the large honey producing countries, namely China, the CIS countries, USA, EU, Argentina and Mexico.

METHODS

Increasing competitiveness gives much more emphasis to the cost reduction, standardisation and intensive production. The characteristics of concentration can also be determined in this sector by the increasing number of bee colonies and decreasing number of honeybee-keeping farms. In certain countries, like USA, Canada and Mexico, the demand for pollination with honeybees increases. The participants of the sector also have to meet the customers' demand; this concerns mainly those honey products that originate from GMO crop production. The honeybee species and their treatments determine mainly the honey production.

In Hungary, the annual honey production oscillates about 16 thousand metric tons. According to the Hungarian Central Statistical Office (2001a), 68 per cent of the produced honey is black locust, 19 per cent is blossom, 6 per cent is sunflower, 5 per cent is rape and 2 per cent is other type of honey.

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Table 1

Honey production in Hungary

Year	Production, Tons	Value of gross production, Million HUF	Share of honey production in value of gross production of agricultural [%]	Share of honey production in value gross production of animal husbandry [%]
1995	16 050	3 679	0.51	1.14
1996	15 811	3 948	0.43	1.06
1997	15 652	4 431	0.42	1.01
1998	16 739	8 035	0.77	1.55
1999	15 431	6 149	0.58	1.27
2000	15 165	5 536	0.50	1.03

Source: Statistical Yearbooks of Hungary 1995-2000, Hungarian Central Statistical Office, Budapest, 1996-2001

Table 2

Honey production costs and returns in 2001 (horizontal hives with frames)

Colonies				
Denomination	50	100	150	200
Average yield per colonies, kilogram's	**10**	**25**	**25**	**25**
Total production, tons	**0.5**	**2.5**	**3.75**	**5**
Honey sales, tons	**0.5**	**2.5**	**3.75**	**5**
Black locust honey, tons	0.5	1.25	1.875	2.5
Blossom honey, tons	0	1.25	1.875	2.5
Revenues	**1 609**	**3 653**	**5 481**	**7 304**
Black locust honey, euro	1 609	2 193	3 288	4 382
Blossom honey, euro	0	1 460	2 193	2 922
Subsidies, euro	390	861	1 293	1 725
Total revenues, euro	**1 999**	**4 514**	**6 774**	**9 029**
Total production costs, euro	**2 123**	**5 212**	**8 099**	**11 379**
Profit, euro	-124	-698	-1 325	-2 350
Gross income euro/kg	-0.2	-0.3	0.3	0.5
Gross income per colonies, euro	-2.5	-6.98	-8.8	-11.8
Profit as proportion of sales revenue, %	**-6**	**-15**	**-19**	**-26**
Profit as proportion of costs, %	**-6**	**-13**	**-16**	**-21**

Source: Nyárs L. (2001): Situation of the Hungarian honey bee-keeping sector and the opportunities for development, Research and Information Institute for Agriculture Economics, Agriculture Studies. Budapest, Number 9., Comment: at 50 colonies only direct sales, 1 Euro = 256.68 HUF

Table 3

Honey production costs and returns in 2001 (super boxes)

Colonies					
Denomination	200	400	600	800	1000
Average yield per colonies, kilogram's	**50**	**50**	**75**	**75**	**75**
Total production, tons	10	20	45	60	75
Honey sales, tons	**10**	**20**	**45**	**60**	**75**
Black locust honey, tons	5	10	22.5	30	37.5
Blossom honey, tons	5	10	22.5	30	37.5
Revenues	**14 610**	**29 219**	**65 743**	**87 354**	**109 572**
Black locust honey, euro	8 766	17 531	39 446	52 591	65 743
Blossom honey, euro	5 844	11 688	26 297	35 063	43 829
Subsidies, euro	1 724	3 448	5 172	6 896	8 619
Total revenues, euro	**16 334**	**32 667**	**70 915**	**94 250**	**118 191**
Total production costs, euro	**13 253**	**25 050**	**39 227**	**54 149**	**68 100**
Profit, euro	**3 081**	**7 617**	**31 688**	**40 101**	**50 091**
Profit, euro/kg	0.30	0.40	0.70	0.66	0.66
Profit per colonies, euro	15.4	19.0	52.8	50.1	50.0
Profit as proportion of sales revenue, %	**19**	**23**	**45**	**43**	**42**
Profit as proportion of costs, %	**23**	**30**	**81**	**75**	**74**

Source: Nyárs, L. (2001): Situation of the Hungarian honey bee-keeping sector and the opportunities for development, Research and Information Institute for Agriculture Economics, Agriculture Studies. Budapest, Number 9

Honey produced in Hungary accounts for about 1-1.2 per cent of the total world production and 4-4.5 per cent of total world honey trade. According to Halmágyi L. and Keresztesi B. (1991), honey producers could collect 40-46 thousand metric tons of honey and this quantity could also be processed by the present processing capacity. In Hungary, 12 honey processors have more than 1 000 tons/year honey processing capacity. Of these plants, 4 work with 4-6 thousand tons/year capacity. Another 6 processors capacity's are between 1-2.5 thousand tons/year. There exist 4 plants, which deal with 100-1 000 tons/year capacity (Nyárs 2001).

The costs-income analyses do not justify the exploitation of the acacia forests. The use of the production potential is limited by the dominance of horizontal hives with frames, which are labour intensive and cannot be mechanised. Up to the EU accession the most important task of the sector is the modernisation of the honeybee-keeping equipment. Subsidies for such technological improvements are available only to a limited extent in the support programs of the EU.

In the cost-income calculations the difficulty is caused by the low representative samples of the data available and this is the reason why conclusions referring to the

whole sector cannot be drawn. Consequently, these data are only for information. For the analyses static models are applied. Calculations were made in two different categories. In one category of horizontal hives with frames the calculations refer to honeybee-keeping farms with 50, 100, 150, 200 bee colonies. In the other category of hives with supers (boxes) honeybee-keeping with 200, 400, 600, 800, 1000 colonies was referred to. Table 2 and table 3 provides estimates of the revenues, costs and returns from operating horizontal hives with frames and super boxes. Yields were determined by categories. Pricing is an important issue in achieving sales and profitability. The price depends on what kind of marketing channels the honey is sold to. The minimum acceptable price should cover all production, marketing, transportation and labour costs. Competitor prices are an important consideration in pricing honey for sale to consumers. Advantages of farm gate sales include: cash payments from consumers without incurring transportation cost, opportunity to develop products for niche markets. The potential to increase sales is limited and producers may not be able to market all of the product through their outlet. As a result, producers need other marketing channels for honey that cannot be sold at the farm gate. In our model, the honeybee-keeping farm with 50 colonies sold honey to the consumers directly. Based on estimates other beekeeping farmers sold their honey to packers and honey agents. Operating with horizontal boxes, revenues cannot hold the wage costs and the depreciation of equipment and vehicles. Due to the low yields, the production is showing loss. In the Hungarian honeybee-keeping sector, the producers do not account for their wages and their contributions.

Real incomes were generated at honeybee-keeping farms provided with hives with super boxes.

According to profitability calculations, the optimal production scale is about 600 bee colonies per apiary in the Hungarian honey bee-keeping sector. Larger stocks with higher yield resulted in higher profitability indicators; however, the high risks involved in large yields (risks of animal health) cannot be ignored (Nyárs L., 2001).

RESULTS

The production structure and specific indicators of the honeybee keeping by stock size do not show the real situation. The participants of the sector are mainly small-scale producers and due to the special tax allowances the ownership of bee colonies is distributed among the family members. The total number of beekeepers in Hungary was approximately 19 thousand in 1991 (Table 4).

Table 4

Number of beekeepers and bee colonies in Hungary

Denomination	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number of beekeepers	19 923	19 013	17 598	16 970	16 887	15 372	15 677	16 672	17 087	16 579
Number of bee colonies (thousand)	716	725	674	646	669	604	642	690	806	840
Bee colonies/ beekeeper	36	38	38	38	39	39	41	41	47	51

Source: Honey Product Council

Table 5

Hungarian exports of honey

Year	Export, tons	Export prices, USD/kg	Export prices, €/kg	Import, tons	Import prices, USD/kg
1995	13 028	1.85	1.47	760	1.33
1996	13 137	1.90	1.55	710	1.20
1997	7 675	1.80	1.66	410	1.20
1998	9 262	2.10	1.92	548	1.20
1999	9 889	1.61	1.53	441	1.03
2000	12 806	1.29	1.40	857	0.94

Source: Statistical Yearbook of External Trade 1995-2000, Hungarian Central Statistical Office, Budapest, 1996-2001

By 2000 the total number of beekeepers had decreased to 16 thousand, 3.7 per cent of whom were declared as professional beekeepers (in order to be regarded as a professional, a beekeeper must operate at least 150 bee colonies in the European Union).

Over the same period, 1991-2000, the number of colonies increased by 17 percent. The 17.2 per cent of the hives are operated by professionals. Economic reasons for the concentration will increase in the future, which also has to be encouraged by the regulations and supports. Honey market following EU, China is the second largest honey producing country of the world, however, its self-supply is particularly low, altogether 47 per cent. The most important export market of Hungary is the European Union; therefore, producers should be informed about market developments and positions. Export of honey decreased by 41,6 per cent from 1996 to 1997 because of the low priced Romanian honey export to European Union (Table 5). In 2000, the main markets for Hungarian honey were Germany, Italy, France, Austria and Finland.

The EU can only satisfy the domestic demand by a high import volume, that is, by 130-150 thousand tons annually. During the period of 1994-2000 the competition strengthened between three main honey suppliers of the EU, namely China, Argentina, Mexico. There is also a hard competition for markets between the small-scale suppliers in Hungary, Romania and Bulgaria. Romania's market share in Germany increased from 1.2 percent in 1994 to 5.8 percent in 1999 while during the same period the market share of Hungary decreased from 4.8 percent to 2.7 per cent. In the dynamic increase of Romanian honey export the foreign companies with large working capitals played a significant role by supporting producers with current assets and operating on site quality assurance systems.

The situation has become much more difficult since 1st January 2001 as Romania, Bulgaria and Czech Republic may export honey to EU markets with zero in-quota tariffs. Within the trade negotiations with the EU Hungary could "only" achieve a (10.38 per cent) tariff cut, which was based on the data of the twelve months -which had an unfavourable impact on the Hungarian honey export. Hungary has exported honey to EU market with zero in-quota tariffs since July 1, 2002. In addition to the competitors mentioned above Mexico was allocated a quota of 30 thousand metric tons with a 50 per cent MFN (Most Favoured Nation) bound rates.

Concerning the quantity Hungary cannot

compete with the large honey exporting countries. Therefore, Hungary has to penetrate the EU honey markets with highly processed and branded products. In the EU member states there are purchasing, packaging and marketing co-operatives in the honey sector. It is important for Hungary as well, because an export price increase is not possible with a bulk product. At present, the interest of the Hungarian honey processors and commercial companies lies in packaging and exporting the honey in barrels. The low producer prices do not favour the producers and the retailers transfer the price reductions to the producers.

In Hungary 90 percent of the honey production is for human consumption and based on the estimations the remaining 10 percent of the honey production is used by the industry (baking industry, sweets industry, pharmaceutical industry and cosmetics) and social programmes. The honey industry also produces beeswax, which is used in making candles and cosmetics. As for the sales of honey there are several marketing channels. The wholesalers purchase 10-13 thousand metric tons of honey from the producers each year depending on the fluctuation of the honey production; that is, the most significant part of the total production annually. The nominal capacity of the Hungarian honey processing plants is about 40 thousand metric tons, which is double of the highest production level of the last ten years. Most of the commercial companies (all the large ones) operate their own honey processing plants. This is the reason why at present the capacities of honey processing exceed the level of production in Hungary.

The regulation system of the Hungarian honeybee keeping is harmonized with the EU regulations; concerning in particular the animal health and the food hygiene legislation. After the EU accession the present Hungarian market order will be replaced by the market orders of the EU Member States. The harmonisation process requires national programmes with accurate data register system. The national programmes have to include both the current and the fixed costs (European Commission (2001 b)). If the sector is not prepared for the EU accession the Hungarian beekeepers will not be eligible for the EU subsidies. The interest groups and professional bodies together with the participants involved in honey production will have to prepare jointly their annual work plan based on the requirements defined by the regulation.

The national development plans and the measures have had to contain also plans for monitoring the implementation and for the evaluation since the use of the financial resources from the EU budget is regulated. The needed information of the sector has not been provided for the preparation of EU accession since the data of the Honey Produce Council and that of the Central Statistical Office did not correspond to each other. At present there are only estimates concerning the marketing channels used by the producers for sales (direct sales to consumers, wholesaler, and retailers, sales to the industry).

CONCLUSIONS

Honey beekeeping is an integrated agricultural activity. In addition to the honey production the pollination by bees is also a significant positive impact externality. In Hungary pollination is considered as a significant part of the technology and for that reason crop production and horticulture are supposed to pay for this service. In the USA and Canada these activities are done by contracts.

Within the Hungarian bee-keeping the most important task is the mechanisation of honey production; and in this way its present labour demand can be lowered. It is only for stand sizes of 200-300 bee colonies that developments will pay off and tolerate interest rates, as well as it is these stand

sizes that permit the financing of production for the following year. The major obstacle to development is the lack of capital and credit.

The development of the sector could be encouraged by establishing service organisations and penetrating both the export and the domestic markets, and branded products with quality assurance certifications in consumer-friendly packages produced by producer's organisations since bee keeping farms with less than 100 bee colonies cannot be competitive on the market. Besides the activities listed above, the service organisation could also get involved in joint material purchase (medicines, sugar, apicultural implements), as in the case of big quantities the service organisation is able to achieve considerable price concessions. Service organisations will be operable only if backed by capital-intensive producers' communities or marketing companies.

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STAN OBECNY I PERSPEKTYWY WĘGIERSKIEGO PSZCZELARSTWA

Nyárs L.

S t r e s z c z e n i e

Pszczelarstwo jest częścią rolnictwa na Węgrzech, które obecnie nie ma możliwości rozwojowych. Udział pszczelarstwa w całkowitej wartości produkcji rolniczej w roku 2000 wynosił 0,3%, a w produkcji zwierzęcej 1,03%. Warunki naturalne sprawiają, że całe terytorium Węgier jest przydatne do produkcji pszczelarskiej. Na aktualne znaczenie pszczelarstwa patrzeć należy nie tylko ze względu na produkcję miodu, doceniana winna być działalność pszczół jak zapylaczy roślin. Udziałowcami w produkcji pszczelniczej są głównie mali producenci. Ze względów ekonomicznych w przyszłości będzie następowała koncentracja produkcji. Węgry ze względu na wielkość nie są w stanie konkurować z wielkimi eksporterami miodu jednak dostarczają na rynki UE wysoko przetworzone markowe produkty.

Słowa kluczowe: produkcja miodu, koszty produkcji, struktura produkcji, eksport miodu, Unia Europejska, organizacja obsługi.