

ECONOMICAL ASPECTS OF BEEKEEPING IN 10 COUNTRIES ASCENDING TO EUROPEAN UNION

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Received 08 November 2004; accepted 04 December 2004

S u m m a r y

The European Union has grown in size with accession of 10 countries. The number of member states increased from 15 to 25. The changes in the 10 countries ascending to EU are really deep. They range from transformations in economical and legal systems to changes in mentality and whole philosophy of life. In the way of transformation the beekeeping should not retreat. The comparison of old 15 members states shows that technological level and skills of beekeepers are similar. Economical indexes like the honey production from bee colony and the number of bee colonies per 1 km² are similar, the first amounts to 15 kg, the second equals 3. The beekeeping statistics in ascending countries are very different. The honey production in EU post accession will increase from 130 to 182 thousands tons. The volume of imported honey after accession 10 new countries will increase by 4.3 thousands tons and the volume of export will increase by 16.2 thousands tons. These values will evolve along with the unification of economical situations in all EU-countries. The EU should also unify standards in all member states. The European beekeeping has a great tradition, which contributes to the present knowledge and science. It leads to the new concepts and innovations and mirrors in the variety of new technological devices. In Europe exist today more than 20 types of hive. Given that the climate conditions are differentiated in the ascending countries, just like they are in old 25 members states, some specialization in honey production would be very reasonable for the sized-up territory of EU. Generally the future honey production in Europe should concentrate in countries with mild climate. In countries of northern Europe it should be limited. The beekeeping in new members states should be more subsidized than in the old countries, especially the investments in infrastructure leading to better quality of sold honey. That would be accomplished by a resignation from trade preferences for some African and Asian countries. The undergoing changes require appropriate actions and full coordination from all members of EU 25.

Keywords: beekeeping, economical aspects, European Union.

INTRODUCTION

The integration of European nations can be viewed both from the political and from the economic perspective. The agriculture of the 15 countries, EU members in the previous years (EU 15), produced an average of 2% of the gross national product whereas in the ascending countries the figure was 4.6%. The employment in agriculture accounts on average for 4.3% of

the total population in EU 15 and for 21% in the ascending countries EU10. That indicator is going to decrease in all EU member states since the effectiveness of agriculture is growing. Given the rate of growth of the gross national product in Poland to stay at 6%, Poland will reach the average level of the EU states in 2028.

The general economic situation also affects beekeeping and honey production.

A general aim of the analysis is the comparison of the state of the apiculture within 10 of countries of newly accepted into structures EU in the context of the interaction among countries “of the old” and “new” Union and of the influence of this fact on the apiculture in member countries EU (www.apiservice.com).

METHODS

Materials and data used in the publication come from different sources: FAO, EUROSAT, Statistical Yearbooks, Apiserwis, and refer to 2003 year. Because of that values presented in different tables and graphs are not always consistent. The materials were verified in detail (Pidek 1999a, 1999b, 1999c, 2000). If statistical data were not available, some figures were the authors’ estimates. Beekeeping in Poland was used as a reference as it represents the world’s average in many respects. The following problems were analysed:

- interest in beekeeping,
- apiary structure,
- number of bee colonies vs. conditions for pollination of entomophilous plants,
- honey production,
- honey market,
- honey import and export,
- honey distribution,

— rentability of production.

Results of research one gave by means of the index in percentage, basic of the numerical and dimension measures, and their variability.

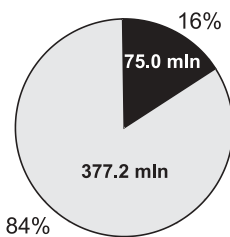
RESULTS



Currently the European Union is made up of 25 countries. Thus as of May 2004 the number of European members has increased almost twofold. The 10 new members account for 40% of the total membership. However, when judged by other indicators the proportions are somewhat different.

The population of the newly accessed nations (EU 10) accounts for 16% of the population of the present EU (25) and occupies 19% of the EU’s total area (Analysis of the Impact on Agricultural Markets and Incomes of EU Enlargement to the CEECs, 2002) (Ryc. 1).

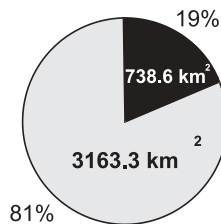
The economic disproportions between the “old” and the “new” EU countries are large. Occasionally, in the “old” Union with the population density of 300 per 1 km² the unemployment rate is ca. 5%, whereas in Poland there are regions where with the population density below 30 individuals per 1 km² the unemployment rate is close to 50% (Pidek 1999 b).



Population of the 25 nations European Union



 EU 10 - newly accessed nations
 EU 15 - previous nations

Total area of the 25 nations European Union



 EU 10 - newly accessed nations
 EU 15 - previous nations

Ryc. 1

Table 1

Interest in beekeeping

Country	Population (in mln)	Number of beekeepers (in 1000)	Beekeepers/total population (in %)	Commercial beekeepers (in 1000)
Cyprus	0.7	0,8	0.1	
Czech. Rep.	10.5	61,4	0.6	
Estonia	1.4	2,7	0.2	
Hungary	10.4	16,0	0.1	
Latvia	2.4	3,0	0.1	
Lithuania	3.8	3,4	0.08	
Malta	0.4	0,2	0.05	
Poland	38.0	50,0	0.1	
Slovakia	5.4	20,0	0.4	
Slovenia	2.0	9,5	0.5	
EU 10	75.0	167,0	0.22	8,350
EU 15	377.2	470,0	0.12	15,072
EU 25	452.2	637,7	0.14	23,422
EU 10/EU 25 (in%)	16.6	26.2		35.6

Such disproportions do not exist in beekeeping. The beekeeping of newly accessed EU countries (10) is on a close level to that of old Union members (EU 15).

COMPARISON OF BEEKEEPING

Interest in beekeeping

The number of people occupied in beekeeping is not always correlated with the total number of residents of a given country. In the Czech Republic, a country three times less populous than Poland, the number of beekeepers is higher whereas in Hungary, with the number of residents close to that in Czech Republic, the beekeepers are fewer by $\frac{2}{3}$. In Czech Republic, Slovenia and Slovakia there is the highest percentage of residents occupied in beekeeping. There are no major differences in this respect between EU 15 and the newly accessed

countries (EU 10) (Table 1).

The proportion of beekeepers in EU 10 in the total number of beekeepers in EU 25 is higher by 10 percentage points than the corresponding proportion of the populations (of EU 10 and EU 25).

In newly accessed EU countries (10) there are around 8,350 commercial beekeepers (it is 5%), in EU 15 there are - 15,072 commercial beekeepers (3.2%).

Apiary structure

The average apiary size in EU 15 and in EU 10 is similar. It is 19 and 21 bee colonies, respectively (Table 2). It varies substantially in EU 10, from 9 to 51 colonies in an apiary. Bee colonies maintained in EU 10 apiaries account for 22% of the total number of colonies in the current EU (25).

Table 2

Size of apiaries

Country	Number of hives (in 1000)	Average size of apiary (hives/1 apiary)
Cyprus	41,0	51.3
Czech Republic	565,0	9.2
Estonia	47,0	17.4
Hungary	605,0	37.8
Latvia	54,0	18.0
Lithuania	41,0	12.1
Malta	3,0	20.0
Poland	800,0	16.0
Slovakia	262,0	13.2
Slovenia	165,0	17.4
EU 10	2585,0	21.2
EU 15	8877,0	18.8
EU 25	11462,0	17.9
EU10 in relation to EU25 (in %)	22.5	

There are more commercial apiaries in the EU 15 countries than in EU 10. In that group there are classified apiaries the size of which is 300 colonies in EU 15 and 150 colonies in EU 10. In both groups there is a tendency for the size of apiary to grow. As of now, there are 30,000 commercial apiaries in EU 25. The apiaries differ for management systems (there are ca. 100 of them). The largest apiaries are in warm climate countries.

Number of bee colonies vs. conditions for pollination of entomophilous plants

The total number of bee colonies in EU 10 is 2.6 million. In the former EU member countries (EU 15) there is on average 2.8 colonies per 1 km² (Table 3). In the newly accessed countries there are 3.5 colonies per 1 km². Thus beekeeping creates average conditions for pollination-

-requiring crops in EU 25 similar to those in EU15. However, within the countries of interest the variation is substantial: from 0.7 to 10 colonies per 1 km², or 15-fold. There is a certain need to adjust that condition but it should be done on a country-to-country basis. In Poland (Pidek 2000), the number of bee colonies, though the highest of all the 10 countries with at the same time the largest occupied area, does not guarantee good pollination. The number should be doubled to achieve that.

Honey production

The pasturage and natural conditions allow a similar volume of honey production. In EU 10 countries the increase in honey production over the last 10 years has been 15%. The total output reached 50,000 tons (Table 4). In Poland, Czech Republic and in Hungary, the honey production of which

Table 3

Potential pollination

Country	Total area (in 1000 km ²)	Number of hives (in 1000)	Hives/1 km ² (average)
Cyprus	9,3	41,0	4.4
Czech Republic	78,9	565,0	7.2
Estonia	45,2	47,0	3.1
Hungary	93,0	605,0	6.5
Latvia	64,6	54,0	0.8
Lithuania	65,3	41,0	0.7
Malta	0,3	3,0	10.0
Poland	312,7	800,0	2.6
Slovakia	49,0	262,0	5.4
Slovenia	20,3	165,0	8.2
EU 10	738,6	2585,0	3.5
EU 15	3163,3	8877,0	2.8
EU 25	3901,9	11462,0	2.9

accounts for 3 of the total EU 10 output the increase was smaller than in the remaining EU 10 countries. In EU 15 and EU 10, the average honey yield per 1 bee colony practically do not differ, being 14.6 kg and 20.2 kg respectively. Among the EU 10 countries, Hungarian apiaries are remarkable for their output, with an honey yield per 1 bee colony of 40 kg of honey. The annual production of honey in the EU 10 countries now accounts for 29% of total honey production in EU25.

Honey market

a/. Consumption

In all European countries honey is produced chiefly for the domestic consumption. The consumption of honey in EU10 varies from 0.1 kg per 1 inhabitant in Lithuania to 1.4 kg in Slovenia, averaging 0.5 kg (Table 5). Given the existing trends it should be supposed that within the next five years the consumption will reach the

level of EU 15 or 0.7 kg. The total honey consumption in EU 10 will reach then 55,000 tons against the current consumption of 40,000 tons. The shortages will be met by tax-free imports from the third world countries or by imports using liberalized import taxation which in such a case is treated as help for low national income countries. The EU 10 countries have not been used to such principles. Honey will make its way from poor countries to EU 25 through not always official channels just as it did in the past to EU 15 (Pidek 1999 a).

b/. Prices

Each country has its own domestic market and retail prices peculiar to it. By principle, the prices are a multiplication of wholesale honey prices. They will be 2 to 4 times higher than the wholesale prices (Table 6). Thus it is better to trade in honey rather than to produce it.

Honey prices will continue to be low in spite of an increased demand. It is

Table 4

Production of honey

Country	Number of hives (in 1000 t)	Average honey yield/1 bee colony (in kg)
Cyprus	0,74	18.0
Czech Republic	6,78	12.0
Estonia	0,75	16.0
Hungary	24,20	40.0
Latvia	0,97	18.0
Lithuania	0,61	15.0
Malta	0,06	20.0
Poland	12,80	16.0
Slovakia	2,64	10.0
Slovenia	2,74	16.6
EU 10	52,29	20.2
EU 15	130,00	14.6
EU 25	182,29	15.9
EU10 in relation to EU25 (in %)	28.6	

characteristic of a depressed market. The world honey prices have stayed at a similar level since 1930. It is caused by a higher rate of growth in the amount of honey produced worldwide in relation to natural rate of population growth. Over the last 10 years honey prices on the world market have increased by almost 21%. In EU 10 countries the percentage increase was higher but the starting prices were lower by 12%. Of the honey-exporting countries, the highest price increase occurred in Poland (Pidek 1999 a, b).

Honey imports and exports

a/. Import

The EU15 countries imported ca. 158,000 tons so it is more than their average annual honey production (table 7). The EU 10 countries have so far imported

relatively little honey: ca. 4,000 tons, what stands for 8% of their own production. Over the last 10 years the imports EU10 rose nearly by half. Among the EU10 countries nearly the entire imported honey finds its way to three states which are also characterized by the highest production (Poland, Hungary, Czech Rep.). Imported honey does not always meet European standards. Those problems occurred in Poland in 2002 as they did in EU 15 countries that re-exported honey.

b/. Export

The EU15 countries exported on average ca. 45,000 tons of honey last year-2003, so about 35% of their own honey production. The EU10 countries exported ca. 16,000 tons, so also about 30% of their own honey production.

Table 5

Honey consumption

Country	Population (in mln)	Average global consumption of honey (production+import-export) (in 1000 t)	Average consumption of honey (kg per capita)
Cyprus	0.7	0,74	1.1
Czech Republic	10.5	6,18	0.6
Estonia	1.4	1,05	0.7
Hungary	10.4	11,90	1.1
Latvia	2.4	1,27	0.5
Lithuania	3.8	0,61	0.2
Malta	0.4	0,06	0.1
Poland	38.0	14,30	0.4
Slovakia	5.4	1,44	0.3
Slovenia	2.0	2,84	1.4
EU 10	75.0	40,39	0.5
EU 15	377.2	243,00	0.7
EU 25	452.2	283,39	0.6
EU 10/EU 25 (in %)		14.2	

(average estimated for 1993-2002 years)

Export of honey of countries EU10 have increased twofold over the last 5 years. At the same time, the production has risen only by 15%. Based on that, it can be supposed that the amount of honey consumed in individual countries was smaller in the last years than at the beginning of that period (FAO data). Hungary, Czech Republic and Slovakia were the largest honey exporters (it is 33% of EU 15 exports). Two thirds of that honey comes from Hungary, a country with a suitable climate and a producer of light and liquid (black locust) honey sought in many countries.

In the EU15 countries honey import was four times higher than export, whereas in the EU10 countries this proportion is opposite – honey export was four times

higher than import. The total amount of honey produced nowadays in the EU25 countries will not meet the demand for honey within the Union even if its consumption stays at the same level. Therefore honey import at 89% level would be necessary. This stimulates intensive development of beekeeping in the EU countries with good climate conditions whose honey production exceeds their local demand and also guarantees good honey market within EU25.

Honey distribution

The distribution of honey through supermarket and hypermarket outlets is done in large consignments. The apiaries of western countries do not meet that condition so 70% of honey is sold directly at the

Table 6

Prices of honey

Country	Average retail prices per kg (in USD)	Average wholesale per kg (in USD)	Relation wholesale and retail prices
Cyprus	-	-	-
Czech Republic	3,0	0,9	0.33
Estonia	-	-	-
Hungary	2,3	1,6	0.7
Latvia	6,4	2,25	0.28
Lithuania	5,0	3,0	0.16
Malta	-	-	-
Poland	5,0	1,5	0.33
Slovakia	1,8	1,2	0.15
Slovenia	5,0	2,5	0.2
EU 10	4,0	2,0	0.2

(average estimated for 1993-2002 years)

Table 7

Honey import and export

Country	Total production of honey (in 1000 t)	Honey import (in 1000 t)	Honey export (in 1000 t)	Import in relation to own honey production (in %)	Export in relation to own honey production (in %)
Cyprus	0,74				
Czech. Rep.	6,78	0,6	1,2	8.8	17.7
Estonia	0,75	0,4	0,1	53.3	13.3
Hungary	24,20	0,4	12,7	1.6	52.5
Latvia	0,97	0,3		30.9	
Lithuania	0,61	0,0	0,0	0.0	0.0
Malta	0,06				
Poland	12,80	2,0	0,5	15.6	3.9
Slovakia	2,64	0,2	1,4	7.6	53.0
Slovenia	2,74	0,4	0,3	14.6	10.9
EU 10	52,29	4,3	16,2	8.2	31.0
EU 15	130,00	158,0	45,0	121.5	35.0
EU 25	182,29	162,3	61,2	89.0	33.6

producer's. In the EU10 ascending countries the problems are of similar nature but their scale is even larger. An example to be followed can be the solutions adopted by the producer groups in Spain. They allow the possibility for the amount produced in small apiaries to be bulked in sold jointly (Pidek 2000).

Rentability of production

The rent ability of production is low. Varied from country to country, production costs become equalized in the wake of globalization trends worldwide. Most frequently, the prices reach the level of unit production costs only in commercial apiaries. Hence in Europe which has a long-standing beekeeping tradition and a diversity of adopted economic variants the apiaries will have to adjust their management principles to the needs of agriculture.

DISCUSION

In the wake of administrative changes following the accession of new member states (EU 10) honey production in the EU (25) will increase from 130,000 tons to 182,200 tons. The possibility of the trade with the honey among states EU will have the influence on the volume of imports and of the exportation from third countries.

The percentage of honey contributed by the newly accessed members in the total EU output is higher than the corresponding proportions of occupied areas and accounts for 40% of honey produced by the 15 member states. The average output per apiary in EU10 is even slightly higher than that in EU15. Honey self-sufficiency in EU 15 is ca. 47% whereas that in EU10 is 57%, which will permit self-sufficiency in terms of honey supply in the new Union to rise by a few percentage points. The condition is subject to change along with changing preferences, price relationship, and legal regulations.

CONCLUSIONS

1. The beekeeping in EU 15 and EU 10 shows a large degree of similarity and so it can be subjected to the joint EU management system without excessive preparations.
2. The number and kind of factors that have impact on beekeeping level varies extensively among countries and even among regions.
3. The need to modify beekeeping is a consequence of general social and economic changes in the EU system e.g. the use of large honey consignments.
4. There is a need to unify the beehive as the basic piece of equipment.
5. Beekeeping should be given priority as it is inexpensive, financially balanced and it positively affects many various fields such as agriculture, ecology, medicine and even philosophy.

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EKONOMICZNE ASPEKTY PSZCZELARSTWA W 10 KRAJACH WSTĘPUJĄCYCH DO UNII EUROPEJSKIEJ

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

UE powiększyła się o 10 krajów. Liczba państw należących do tej organizacji zwiększyła się z 15 do 25. Zmiany w 10 państwach wstępujących do Unii (UEA) dotyczą nie tylko systemu gospodarczego, prawnego, ekonomicznego ale mentalności i filozofii życia. Zmiany te nie ominęły również pszczelarstwa. Porównanie państw 15 UE i UEA wskazuje na dużo podobieństw technologicznych oraz wiedzy profesjonalnej. Podobne są średnie wskaźniki ekonomiczne, wydajność miodu z 1 rodziny pszczoły - 15kg, liczba rodzin pszczelich na 1km² powierzchni kraju - około 3. Dane statystyczne odnoszące się do pszczelarstwa poszczególnych krajów są różne. Po przyłączeniu 10 państw do UE produkcja miodu wzrośnie ze 130 tys. ton do 180,2 tys. ton, co w pewnym stopniu wpłynie na relacje pomiędzy importem i eksportem miodu z krajów nie będących członkami UE. Wartości te będą się zmieniały wraz z ujednoczeniem warunków we wszystkich krajach UE. Należy dążyć też do unifikacji technologicznej. Tradycje pszczelarskie w Europie mają pozytywny wpływ na wiedzę pszczelarską, która prowadzi do różnych interpretacji i koncepcji mających swój wyraz w różnorodności rozwiązań technicznych sprzętu. W Europie jest ok. 20 systemów uli. Klimat państw UEA jest zróżnicowany w takim samym stopniu, jak w dawnych państwach UE. Celowa więc wydaje się pewna specjalizacja produkcji dotycząca wszystkich krajów UE 25. Produkcja miodu winna być koncentrowana w państwach o łagodniejszym klimacie. Natomiast w państwach północnej Europy należy ją ograniczyć. Pszczelarstwo w państwach UEA musi podlegać większej ochronie w porównaniu z dawnymi państwami UE w zakresie dofinansowania infrastruktury produkcji prowadzącej do poprawy jakości sprzedawanego miodu. Może to nastąpić poprzez rezygnację z preferencji handlowych dla niektórych krajów Afryki i Azji. Zachodzące zmiany wymagają koordynacji poczynić ze strony wszystkich państw UE 25.

Słowa kluczowe: pszczelarstwo, aspekty ekonomiczne, państwa Unii Europejskiej.