The opportunities of large scale beekeeping in Hungary

Since the honey consumption is increasing, beekeeping is out for developing in point of the number colonies and production worldwide. The EU is only 50% self-sufficient of honey. Currently honey shares only a few per cent on the market of sweetening. It is explained mainly with the shop prices coming from the prime cost. Nevertheless it is also known its excellent physiological effects, which makes it more wanted in our days. It is proven, that 80% of the ecological utility of beekeeping comes from pollination counting with the bee’ function in the ecological system their work appears in the beekeepers income only in 10%. Currently, Hungarian beekeeping gives 1% of the gross production value of our agriculture, and 2% of the animal husbandry. This sector ensures complementary or main income for 16 thousand families for their living. In consequence of our country’s natural capability the rush period of labor for spring developing overlays the rush-hour for producing (in the spring the bees collect 50% of their yearly income in 10 days). With this situation we got into a permanent logistic inconvenience in contrast to our competitors. To run up our competitiveness the function of cutting expenses, standardization and intensive production is increasing. For these environmental and technological conditions there is a need for utilisable stock. The apicultural products need to meet the requirements of the customers. Therefore it is indispensable to modernize the product chain.

The aims of the study were to analyze the large-scale beekeeping for production, technological levels, the relationship between cost and revenue, practical problems and possible solutions in the beekeeping sector. The methodology was processing national and international sources of literature, analyzing statistical data, my practical experiences from my trainee periods spent in large-scale apiaries and consultations with the Support Group of the National Association Hungarian Beekeepers.

Due to the natural capability of our country in the spring period of the hive development overlaps the work peak of production (10 days during the spring, the bees collect half the amount of the annual honey production), in this situation we deal with a main handicap in labor management compare to our surrounding competitors. The cost reduction, standardization, the more intensive production is a growing role to increase our competitiveness. Therefore, there is a need for an appropriate species for our environmental and technological conditions. The consumer expectations for the bee products are increasingly higher, so it is essential to upgrading the product line.

It is proven that 80% of the ecological benefits from beekeeping is realized through pollinating cultivated plants. If the role of bees in the ecosystem is taken into account, in the result of the work the

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turnover for beekeepers displays just over 10%. Currently, beekeeping gives 1% in the Hungarian agriculture gross output value, in livestock 2% of the total. The beekeeping industry currently provides additional livelihood or main source of income for 16000 families, thus indirectly contributing to the capacity of the rural population as well.

There is not a member country, which could produce as much honey as they put out for domestic consumption. Spain has the only production that is closer to the internal needs. England and Germany are the most reliant on imports (1. table) (Bröss, 2001).

There are 11 jarring plants, that there primary processing capacity is in excess of 1000 tones per year, one of them with a capacity exceeding 8,000 tones per year. These plants in addition to some 400 small honey plant in the country, which process the honey production of one apiary or a smaller area (OMME, 2007).

The efficiency of production is determined by the labor hours required for a colony, which is three times as many in our country than the U.S., and twice as many as in the western EU member countries. In the early 1990s, statistics show that 200 beehives could ensure the livelihood for an average Hungarian household. Now this number is arisen to 400 colonies. (2. table) (Dohos, 2002; Nagy, 2007).

Another measure of the effectiveness is the income per colonies, which is shown in table 3. (Nyárs, 2003).

For the annually repeatable high-quality production in large quantity of goods optimal biological conditions and large-scale technology is needed, which requires a large investment, high initial capital, precise organization and centralized operation. The most important factor is minimizing the cost of the production. According to my personal experience large-scale beekeeping trainee periods, the technological conditions are as follows:

With the technology based on integrated vertically managed box hives it is “easy” to take away the brood less honey supers. The various works, such as taking honey off or extracting are

<table>
<thead>
<tr>
<th>Country</th>
<th>Production</th>
<th>Import</th>
<th>Export</th>
<th>Excise</th>
<th>Excise per person</th>
<th>Self-sufficiency</th>
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<tbody>
<tr>
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<td>33</td>
<td>13,4</td>
<td>10,4</td>
<td>36</td>
<td>0,9</td>
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<td>24</td>
<td>101</td>
<td>1,2</td>
<td>25,7</td>
</tr>
<tr>
<td>Francia</td>
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<td>16</td>
<td>3</td>
<td>38</td>
<td>0,6</td>
<td>65,8</td>
</tr>
<tr>
<td>Greece</td>
<td>14</td>
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<td>0,5</td>
<td>16,5</td>
<td>1,5</td>
<td>84,8</td>
</tr>
<tr>
<td>Italy</td>
<td>9</td>
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<td>3,9</td>
<td>17,1</td>
<td>0,3</td>
<td>52,5</td>
</tr>
<tr>
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<td>0,8</td>
<td>12,8</td>
<td>1,3</td>
<td>70,2</td>
</tr>
<tr>
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<td>2</td>
<td>1</td>
<td>5</td>
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<td>80,0</td>
</tr>
<tr>
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<td>33</td>
<td>0,6</td>
<td>9,1</td>
</tr>
<tr>
<td>Hungary</td>
<td>16</td>
<td>0,7</td>
<td>12,7</td>
<td>4</td>
<td>0,4</td>
<td>400</td>
</tr>
</tbody>
</table>

(Source: Kommission der Europäischen gemeinschaften, 2004)
2. Table: The income running after the output levels and the size of the apiaries in Hungary.  
(Measure: HUF/colony)

<table>
<thead>
<tr>
<th>Colony</th>
<th>40 kg</th>
<th>50 kg</th>
<th>60 kg</th>
<th>70 kg</th>
<th>80 kg</th>
<th>90 kg</th>
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<tbody>
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<td>1606</td>
<td>4756</td>
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<td>6908</td>
<td>10058</td>
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<tr>
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<td>7963</td>
<td>10513</td>
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<td>7000</td>
<td>10150</td>
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<td>9061</td>
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<tr>
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<td>-866</td>
<td>2284</td>
<td>5434</td>
<td>8584</td>
<td>11734</td>
</tr>
</tbody>
</table>

(Source: Mezőgazdasági üzemtan II. Mezőgazdasági Szaktudás Kiadó, Budapest (2002))

3. Table: The main honey producer countries and Hungary’s specific income  
(Measure: kg/colony)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
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<td>34</td>
<td>44</td>
<td>31</td>
<td>41</td>
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<tr>
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<td>53</td>
<td>58</td>
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<td>60</td>
</tr>
<tr>
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<td>28</td>
<td>30</td>
<td>33</td>
<td>32</td>
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<tr>
<td>Hungary</td>
<td>24</td>
<td>26</td>
<td>24</td>
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<td>19</td>
</tr>
<tr>
<td>Mexico</td>
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<td>24</td>
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<td>29</td>
<td>27</td>
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<tr>
<td>Russia</td>
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<tr>
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<td>12</td>
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<tr>
<td>USA</td>
<td>24</td>
<td>35</td>
<td>33</td>
<td>37</td>
<td>37</td>
</tr>
</tbody>
</table>

(Source: based on data of FAO, counted by AKII)

separated in time and space. The supers can be easily combined for queen rearing. The nest can be checked for population and quantity of food quickly without disturbing or loosing nest heat. Easy unifloral production (1. picture).

The criterion mechanization is a uniform hive system, therefore it is important that the beekeeping equipments are standard and compatible with each other. Thus the branches of a workflow to manage require only one type of machine to be used and only one way. From uniform sized supers the age honey frames can be transferred to the nest, so it's easier to manage our comb stock (2. picture).

During the year the colonies equalized for population and food are treated at the same time using the same method. Instead of colony level, the workflow can be designed on stock level, production blocks can be designed so that routine tasks can be carried out within the work cycles (3. picture).

There is a need for a central location and used as temporary storage space for equipment and vehicles. The honey house is part of the site, which is a spatial and time segregation between harvesting and other processes in addition allows for pre-heating the honey before extraction. The cryopreservation of the extracted frames effectively defends against the wax moth. The selling of stock can be stored without spoilage (4. picture).

There is a need for transportation vehicle with big capacity to move our equipment in large groups. First, the major parts of the people are afraid of bees, and some of the processes involve an unusual timetable, which is difficult to reconcile with the commercial carriers. For a productive apiary based on good biological con-
ditions in the primary which is generally not accompanied by an easy reach. Since to most of the apiaries lead unpaved and often steep roads where only off-road vehicles can be driven (5. picture).

The criterion for managing bees is that the labor is familiar with the biology of bees and able to recognize the queens and know the specific workflow periods to do the job tasks with routine. Unnecessary communication in the apiary should be avoided. In the honey house the space and equipment usage should be organized logically to minimize the labor locomotion (6. picture).

According to the decree of 70/2003. (VI. 27) FVM for bee stock conservation and disease handling following the confirmation of serious disease the official veterinarian is bounded to order the quarantine for the apiary.

According to the decree of 43/1968. 15/1969. (XI. 6) MÉM regulates the installations of the migrating apiaries, therefore to a bigger stock than 20 colonies are prohibited to settle closer than 200 meters. The Consultancy Network of the Hungarian National Beekeeping Association there should be a bigger ethical distance.

Since the marking and tracing of individual bees (except for the queen) practically impossible the receiving stolen goods is a
considerable problem for beekeepers. Beekeepers who have only a single apiary, they already hardly manage to keep one eye on there bees, many migrating beekeepers are living in the bee yard for the honey flow season.

Furthermore beekeepers ma-

naging multiple apiaries are having more difficult situation to deal with, since at only one place they can be at one time. According to the Press Department of the Hungarian National Police Headquarters, they proof the stealing if someone is caught red-handed.
The regulation of the Minister for Agriculture and Rural Development 121/2009. (IX. 11.) under the Hungarian Ministry of National Apiculture Program a registration program has developed for tracking bee stocks and the beekeepers can get funds for modernizing equipment and security system.

The majority of factors affecting the conditions of large-scale beekeeping are appearing as risks rather than obstacles, which may not be expected universally. There is no rule to all situations equally observable, and there is no valid prescription for every situation.

References


