

Dynamics of Efficiency and Optimization of Beekeeping Production Processes in Specialized Farms

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Introduction. Special studies carried out around the world show that beekeeping plays an important role in various sectors of the economy. The importance of this industry is determined not only in the production of bee products that are necessary for mankind, but also as a means of pollinating crops. "Reports of bees disappearing from around the world show that beekeeping is in danger of extinction." Accordingly, in many countries of the world, special attention is paid to improving the organizational and economic mechanisms of beekeeping management as an important condition for ensuring the efficiency and sustainability of the industry.

At present, research is being carried out in various scientific centers and research institutions around the world in many areas of effective beekeeping management. In particular, the formation of a beekeeping management strategy, improving the main approaches to organizational and economic management mechanisms, expanding cooperation between relatively small farms, strengthening the diversification of beekeeping products, and increasing the efficiency of managing innovative processes in these farms.

methods. In the process of preparing the dissertation, such methods as general scientific, formal-logical, specific methods for studying the situation, classification, generalization, horizontal and vertical comparison, econometric modeling, empirical research, factor analysis, forecasting were used.

Results. Comparing the beekeeping of Uzbekistan with the beekeeping of foreign countries, we note that one of the negative trends of the current stage of development of beekeeping in the Republic of Uzbekistan is the violation of the existing relationships between the individual elements of the productive forces. The disproportion between the elements of the productive forces of beekeeping and the rise in prices for agricultural and industrial products is revealed, which is associated with an increase in the gap between the prices for means of production (machinery, equipment, honey extractors, apiary houses, platforms for transporting beehives, fuel and lubricants, etc.) and prices for industry products.

Thus, when studying the current state and level of development of the productive forces of beekeeping, the study revealed the following:

- the presence of a disproportion between the elements of the productive forces of beekeeping;
- indicators of the need of the population of the Republic of Uzbekistan for honey according to medical standards lag behind medical standards, the level of provision of the population with honey remains low;

- there is a tendency to reduce the number of bee colonies and workers employed in large beekeeping organizations in Uzbekistan.

Using the above materials, we can conclude that the reasons for the significant reduction in bee colonies are:

1. The rupture of long-term integration ties and the general economic decline in all countries after the collapse of the union state;
2. Transition to market mechanisms for organizing beekeeping farms, reducing subsidized costs for their maintenance, saving on mechanization;
3. Lack of raw materials, poor quality feeding of bee colonies, use of various surrogates instead of sugar;
4. Lack of experienced beekeepers, massive exodus from the industry of experienced and competent beekeepers, which led to a drop in the level of knowledge and innovative approaches in beekeeping;
5. An unbalanced rise in prices for honey and fuels and lubricants, which will lead to a rise in the price of bee products, because due to the nature of the industry, frequent moving of the apiary requires high energy costs;
6. Lack of investment in the beekeeping industry contributed to the physical and moral deterioration of the material and technical base;
7. Insufficient funding of scientific research in the beekeeping industry has led to a decrease in productive forces.

Analyses. Economic efficiency shows the final beneficial effect from the return on total investment.

In table 1, we considered the effectiveness of beekeeping in the Tashkent region for the period 2012-2019.

Table 1. Dynamics of the efficiency of beekeeping in the Tashkent region in 2012-2019

Indicators	2012 y	2013 y	2014 y	2015 y	2016 y	2017 y	2018 y	2019 y
Number of bee colonies	13540	14540	15645	14642	16669	17468	20638	21300
Produced honey, kg	223410	251542	278481	279662	336713	345866	363228	391920
Productivity on honey of 1 bee family, kg.	16,5	17,3	17,8	19,1	20,2	28,1	24,0	28,2
Realized honey, kg.	98300	110678	122532	125848	151521	155640	163452	195960
Selling price 1 kg. honey, thousand soums	20	20	22	26	30	30	30	35
Gross proceeds from the sale of honey, million soums	1966,0	2213,6	2695,7	3272,1	4545,6	4669,2	4903,6	5789,3
Honey production costs, mln.	1528,9	1633,0	2139,1	2511,7	3742,0	3869,1	4021,0	4488,0
Net profit from the sale of honey, mln.	437,1	580,6	556,6	760,4	803,6	800,1	882,6	1301,3

Table 1 shows that in the period from 2012 to 2019, the efficiency of beekeeping in the Tashkent region has increased significantly: the number of bee colonies has increased significantly, the

volume of honey produced, the gross profit from its sale and the net profit of beekeeping farms have increased. Despite the presence in some farms of high costs of honey production, insufficiently efficient use of available material resources for the production of honey and bee products, an analysis of the performance indicators of bee farms in the Tashkent region indicates a general trend in its growth, thanks to the measures taken by the Government of the Republic of Uzbekistan.

In the course of the study, objects of a monographic study were selected and an analysis of the effectiveness of beekeeping was carried out on the example of two large state forestry enterprises of Uzbekistan: Brichmulla and Akhangaran state forestry.

As auxiliary farms, including large ones, apiaries are created, the products of which are used for sale to the population and additional income as a diversified product. At the same time, assistance is provided to the agricultural sector in increasing crop yields through cross-pollination of fields and forest lands.

Table 2. Honey balance in Brichmulla and Akhangaran state forestry enterprises in 2012-2019

Years	Number of bee colonies					Received commercial honey kg.	Fed sugar kg.	Fodder honey production	Gross honey production kg	Share of marketable honey in gross production, %
	At the beginning of the reporting period	Perished	Purchased	At the beginning of the honey collection	restored					
Brichmulla State Forestry										
2012	650	155	-	495	155	412	2680	9100	9512	4
2013	650	170	-	470	80	1643	6017	6960	8603	19
2014	550	92	-	509	202	3277	7440	6887	10164	32
2015	660	72	-	588	72	3630	5930	8840	12470	29
2016	762	93	-	669	93	7683	9600	11142	18825	41
2017	885	-	-	885	-	4343	9758	14154	18497	23
2018	1011	-	-	1011	-	5625	9850	15142	20767	25
2019	1025	-	-	1025	-	5962	9625	152632	22689	27
Akhangaran state forestry										
2012	511	-	118	511	-	2358	2245	2358	4716	50
2013	540	-	-	540	-	2800	4520	2420	5220	53
2014	561	-	100	561	-	2030	6420	2030	4060	50
2015	691	-	50	691	-	3840	6204	3840	7680	50
2016	801	-	42	801	-	4140	6501	4140	8280	50
2017	881	-	-	881	-	0	8250	4903	4903	0
2018	969	-	-	969	-	405	8620	4820	5225	8
2019	993	-	-	993	-	953	8956	5022	5426	12

Brichmulla State Forestry is located in the Tashkent region on the territory of the Ugam-Chatkal National Park. The total land area is 354378 hectares, the total forest area is 79660.1 hectares, which is 22.5% of the total area of the economy.

On the territory of the Ugam-Chatkal National Park, the impact of anthropogenic factors on nature is minimized. Large areas of melliferous plants, such as apple orchards, cherries, hawthorn, almonds, cherry plums, juniper forests, a wide variety of herbs and shrubs from which bees collect honey from May to October, allow you to maximize the strength of the bee colony before the start of the main honey collection and gain a sufficient amount of honey for their safe wintering.

After carrying out timely veterinary measures and strengthening the food supply of bees in the winter, the death of bee colonies has noticeably decreased from 2017 to 2019. stopped completely.

From the data in the table it can be seen that in Akhangaran state forestry reached its maximum productivity in 2015-2016, and in 2017-2019. there is a tendency to reduce the volume of honey produced. What is the result of low productivity of bee colonies.

It should be noted that the Brichmulla Forestry has restored the number of bee colonies in recent years by increasing the strength of the existing bee colonies by breeding their own bee packages, without additional purchases from other farms. The data shows that by 2018-2019. The farm systematically increased the gross amount of honey, however, the share of commercial honey in the gross production remains quite low, at the level of 25-30% (with the exception of 2016, when this share reached 41%).

The Akhangaran State Forestry is located on the territory of the Ugam-Chatkal National Park, the total land area of which is 143,652 hectares, the total forest area is 37,565.1 hectares, or 26.2% of the total area.

From the data in the table it follows that in 2012-2016. the share of commercial honey in the composition of gross honey fluctuated within 50-53%. However, in 2017, the farm did not produce marketable honey, all honey produced was forage. In 2018, the share of commercial honey was 8%, in 2019 - 12%, which indicates the need to take a number of measures to increase the volume of commercial honey produced. To do this, it is necessary to determine the factors affecting the efficiency of beekeeping production in the Brichmulla and Akhangaran state forestry enterprises, where one of the main ones is the cost of beekeeping products.

So, in the Brichmulla state forestry, the cost of 1 kg. honey systematically decreased: in 2015 they amounted to 2.62 thousand soums, in 2017 - 2.06 thousand soums, in 2018 they decreased to 1.89 thousand soums.

Table 3. Labor intensity and labor productivity in the Brichmulla and Akhangaran state forestry enterprises in 2012-2019.

The name of indicators	2012	2013	2014	2015	2016	2017	2018	2019
Brichmulla State Forestry								
Number of workers employed in beekeeping, pers.	10	10	11	11	11	12	14	14
Remuneration of employees, thousand soums per year	16900	22200	24900	26700	27900	28300	29500	30850
Remuneration of 1 employee, thousand soums per year	1690	2220	2264	2427	2536	2358	2107	2204
Labor productivity of 1 employee, thousand soums / person	2335	1606	1212	2543	6673	3742	6202	6309
The ratio of wages and	0,72	1,3	1,8	0,9	0,4	0,6	0,3	

productivity								0,4
Akhangaran state forestry								
Number of workers employed in beekeeping, pers.	8	8	8	10	10	12	12	12
Remuneration of employees, thousand soums	20100	25300	32100	51400	59700	77100	85000	85990
Remuneration of 1 employee, thousand soums	2513	3163	4013	5140	5970	6425	7083	7166
Labor productivity of 1 employee, thousand soums / person	994	1360	1333	3860	6021	4551	2200	4369
The ratio of wages and productivity	2,5	2,3	3,0	1,3	0,7	1,4	3,2	2,0

During the period under study, the indicators of wage growth significantly outstrip its productivity, which makes the beekeeping economy unprofitable, that is, the economy receives a loss as a financial result.

Discussion

The study of the current state and level of development of the productive forces of beekeeping in the Republic of Uzbekistan made it possible to identify the following factors influencing the management of the industry:

- established the disproportion between the elements of the productive forces of beekeeping;
 - in the context of regions, a significant reduction in the number of bee colonies was revealed;
 - trends in the reduction of the share of beekeeping and the number of employees employed in large beekeeping organizations have been revealed.
 - the calculation of the need of the population of the Republic of Uzbekistan for honey according to medical standards and the level of provision of the population with this product was made.
2. An assessment of honey potential resources was carried out, taking into account honey resources in various climatic zones of the republic;
- ✓ periodization of flowering of melliferous plants was carried out;
 - ✓ the effectiveness of cross-pollination of fruit trees, cotton and sunflowers was determined.

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