

HONEY PRODUCTION IN HIMACHAL PRADESH: A COMPARATIVE ANALYSIS OF DISTRICT SHIMLA AND DISTRICT KANGRA

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ABSTRACT

Beekeeping is an ecologically sound, economically viable, and socially acceptable agro-based activity, which offers an immense potential for farmers/landless labours in rural areas as an integrated farming practice. Beekeeping supplements income, employments generation, and nutritional intake of rural population. Therefore, beekeeping is an alternative and attractive means of generating income to improve the quality of life of rural communities. This paper empirically identifies the production of honey, bee-wax, and labour costs involved in it in the study area.

Keywords: Beekeeping, honey, bee-wax, farming, nutritional etc.

Introduction

Beekeeping is a socio economic venture that plays an important role in sustainable agriculture & bio-farming. Honey bees not only provide valuable products but also act as indicators of environment. Bee keeping provides supplementary source of income to the farmers, especially to the rural people. Other enterprises like poultry, dairy, mushroom growing, etc., require higher initial costs than beekeeping. Due to its low cost and higher returns, farmers prefer beekeeping as an important subsidiary business as compared to other agro-based industries. In our country, many people want to take up beekeeping as a profession but they are not able to adopt this enterprise because of the factors such as problem of migration, excess use of pesticides in crop fields, bee diseases and enemies, weather conditions, marketing of bee products, and low price of hive products.

Himachal Pradesh has a thriving beekeeping industry. Great strides in modernizing beekeeping with the exotic and native honey bee species are being made. Himachal Pradesh boasts of having a greater diversity of bee flora due to varied agro-climatic zones in the state and thus, has immense potential for profitable bee keeping. The whole state is divided into two zones i.e. East and West zone for the development of bee keeping. The East zone comprises of eight districts viz. Shimla, Solan, Sirmour, Kinnaur, Bilaspur, Mandi, Kullu and Lahaul Spiti. The remaining districts of Kangra, Hamirpur, Una and Chamba constitute the West Zone. The Bee keeping Development Officers (BKDO) have been posted at Shimla for East Zone and at Kangra for West Zone. Every district has been provided with a government bee keeping station.

Keeping in mind the importance of bees as pollinators, the department has started a scheme of renting out the bee colonies to orchardists for pollinating the fruit crop. A nominal rent of Rs. 40 per colony per season is charged for the purpose. The orchardists have to arrange for to and fro transportation of these colonies and pay for it. It has been observed that demand for such colonies in apple producing areas during apple season far exceeds the supply. The orchardists either are not able to procure the desired number of colonies or sometimes fail to get these at all. The department also supplies the bee colonies to farmers or private bee keepers. But again factors like delay, non availability of bee colonies with the department etc. forces the private keepers to purchase these from other sources despite higher prices.

Objective Of The Study

1. To empirically analyze honey and bee-wax production in the study area.
2. To examine the labour cost involved in honey production in the study area.

Need Of The Study

Honey production provides the economic and employment opportunities for people engaged in beekeeping in the state. In honey production, employment is obtained in direct as well as indirect forms of employment opportunities. To empirically analyze the production of honey and bee-wax practices of beekeepers and cost involved in it in Shimla and Kangra district, there is a need to conduct the research.

Research Methodology

The paper is based on primary studies and descriptive research. The data has been collected through questionnaire and interview schedule. Independent random sampling is used to work out the production of honey and bee-wax, and labour cost involved to produce the honey and bee-

wax in the study area. Sample was taken selectively from two *tehsils* of both the districts and 100 beekeepers from Kangra district and 70 beekeepers from Shimla districts were the respondents. The sample is categorized into three i.e. small, medium and large categories according to the bee boxes held by the bee keepers. In Shimla district, the number of small bee keepers holding ≤ 50 boxes is 15, the number of medium bee keepers holding ≤ 100 bee boxes is 27, and the number of large bee keepers holding > 100 bee boxes is 28. Similarly, in Kangra district, the number of small bee keepers holding ≤ 50 boxes is 22, the number of medium bee keepers holding ≤ 100 bee boxes is 31, and the number of large bee keepers holding > 100 bee boxes is 47.

Simple averages have been worked out for different categories in both the districts to compare the production of honey, bee-wax, and labour cost involved in the bee keeping process. To meet this purpose, the list of bee keepers have been collected from the Bee Keeping Development Officer (BKDO) of the State Department of Horticulture, Government of Himachal Pradesh.

Analysis And Interpretation

1.1 Production Of Honey

The average production of honey in Himachal Pradesh is less as compared to the other states. In fact, the bee keepers of Himachal Pradesh mostly produce their honey outside the state.

Table-1.2: Production of Honey (Kg./Apiary)

Particulars		Small	Medium	Large	Over all
Shimla	Within Himachal Pradesh	310 (18)	557 (15)	821 (12)	674 (15)
	Outside the State	1415 (82)	3156 (85)	6019 (88)	3819 (85)
	Total	1725 (100)	3713 (100)	6840 (100)	4493 (100)
Kangra	Within Himachal Pradesh	-	-	-	-
	Outside the State	2075 (100)	4200 (100)	7228 (100)	5157 (100)
	Total	2075 (100)	4200 (100)	7228 (100)	5157 (100)
Over all	Within Himachal Pradesh	134 (7)	323 (8)	605 (8)	353 (7)
	Outside the State	1787 (93)	3714 (92)	6961 (92)	4692 (93)
	Total	1920 (100)	4037 (100)	7566 (100)	5045 (100)

Source: Own survey for present study.

Note: Figures in the table indicate the average production of honey in kg per apiary per annum and in parenthesis it is the percentage of that production.

It find from the analysis of data from the table-1.1 that mostly the bee keepers were migratory in nature.

It is depicted from the table that in district Shimla, the total average production of honey was 4493 kg. per apiary per annum, out of which 674 kg. per apiary per annum was produced within the state and 3819 kg. per apiary per annum was produced outside the state. Thus, the analysis shows that in district Shimla only 15 per cent of honey was produced within the state and 85 per cent of honey was produced outside the state. In case of district Kangra, the average production of honey was 5157 kg. per apiary per annum and 100 per cent of honey was produced outside the state. Therefore, it was found that district Kangra produced more honey than district Shimla in

totality. But, only district Shimla produced some honey within the state. It was because of the sufficient flora for the honey bees during spring and summer season.

At overall level, the total average production of honey in Himachal Pradesh was 5045 kg. per apiary per annum which was found to be 353 kg. per apiary per annum within Himachal Pradesh and 4692 kg. per apiary per annum outside Himachal Pradesh. At overall level in Himachal Pradesh, the total average production of honey was calculated to be 1920, 4037, and 7566 kg. per apiary per annum among different size of bee keepers i.e. small, medium and large, which shows an increasing tendency with an increase in the size of bee keepers. Further, the analyses revealed that the average production of honey within the state was only 7 per cent which was very less as compared to the percentage of average honey production outside the state that is 93 per cent.

Therefore, it can be concluded that mostly honey was produced outside of the state; it's because of the migratory nature of the beekeepers that migrate outside the state to adjacent states for feeding and suitable climatic conditions for the honey bees. The honey bees survive in warm climate condition mostly, so it is very difficult for them to survive in cold climate conditions of Himachal Pradesh.

1.2 Production Of Bee-Wax

The average production of bee - wax in Himachal Pradesh is less as compared to the other states. Simultaneously both bee-wax and honey is being produced outside the Himachal Pradesh.

The table showed that in district Shimla, the total average production of bee-wax was 45 kg. per apiary per annum, out of which 7 kg. per apiary per annum was produced within the state and 38 kg. per apiary per annum was produced outside the state. Thus, the analysis shows that in district Shimla only 15 per cent of bee-wax was produced within the state and 85 per cent of bee-wax was produced outside the state. In case of district Kangra, the average production of bee-wax was 52 kg. per apiary per annum and 100 per cent of bee-wax was produced outside the state. Hence, it was found that district Kangra produced more bee-wax than district Shimla in totality. But, only district Shimla produced some bee-wax within the state. It was because of the sufficient flora for the honey bees during spring and summer season.

Table-1.2: Production of Bee - Wax (Kg./Apiary)

Particulars		Small	Medium	Large	Over all
Shimla	Within Himachal Pradesh	3 (17)	6 (16)	9 (13)	7 (15)
	Outside the State	15 (83)	31 (84)	60 (87)	38 (85)
	Total	18 (100)	37 (100)	69 (100)	45 (100)
Kangra	Within Himachal Pradesh	-	-	-	-
	Outside the State	21 (100)	42 (100)	73 (100)	52 (100)
	Total	21 (100)	42 (100)	73 (100)	52 (100)
Over all	Within Himachal Pradesh	2 (10)	3 (8)	6 (8)	4 (8)
	Outside the State	17 (90)	37 (92)	70 (92)	47 (92)
	Total	19 (100)	40 (100)	76 (100)	51 (100)

Source: Own survey for present study.

Note: Figures in the table indicate the average production of bee- wax in kg per apiary per annum and in parenthesis it is the percentage of that production.

At overall level, the total average production of bee-wax in Himachal Pradesh was 51 kg. per apiary per annum which was found to be 4 kg. per apiary per annum within Himachal Pradesh

and 47 kg. per apiary per annum outside Himachal Pradesh. Thus, it was found that in Himachal Pradesh, the total average production of bee-wax was calculated to be 19, 40, and 76 kg. per apiary per annum among different size of bee keepers i.e. small, medium and large, which shows an increasing tendency with an increase in the size of bee keepers. Further, the analyses revealed that the average production of bee-wax within the state was only 8 per cent which was very less as compared to the percentage of average bee-wax production outside the state that is 92 per cent.

Therefore, it can be concluded that mostly bee-wax was produced outside of the state; it is because of the migratory nature of the beekeepers that migrate outside the state to adjacent states for feeding and suitable climatic conditions for the honey bees. The honey bees survive in warm climate condition mostly, so it is very difficult for them to survive in cold climate conditions of Himachal Pradesh.

1.3 Labour Cost

The labour cost means the cost involves in daily up keeping of the labours and all other tasks involved during production except during migration of labour.

Table 1.3 Labour Cost Incurred in Honey Production (Rs./Apiary)

Particulars		Small	Medium	Large	Over all
Shimla	Within Himachal Pradesh	8000 (16)	12000 (18)	15000 (18)	12343 (18)
	Outside the State	40000 (84)	54000 (82)	69000 (82)	57000 (82)
	Total Labour Cost	48000 (100)	66000 (100)	84000 (100)	69343 (100)
	Within Himachal Pradesh	6000 (14)	10000 (17)	22000 (23)	14760 (19)
	Outside the State	36000	50000	74000	61200

Kangra		(86)	(83)	(77)	(81)
	Total Labour Cost	42000	60000	96000	75960
		(100)	(100)	(100)	(100)
Over all	Within Himachal Pradesh	6811	10931	19387	13765
		(15)	(17)	(21)	(19)
	Outside the State	37621	52042	72133	59470
		(85)	(83)	(79)	(81)
	Total Labour Cost	44432	62793	91520	73235
		(100)	(100)	(100)	(100)

Source: Own survey for present study.

Note: Figures in the table indicate the average cost of bee keepers in Rs. per apiary per annum and in parenthesis it is the percentage of that cost.

It was found that majority of bee keepers out of total sample had one or two labours for daily up keep and other related tasks. The labour cost incurred is analysed separately within the state and outside the state. During this analyzes it was also found out those who had the small and medium sample sizes in such cases bee keepers were doing daily upkeep and other related tasks themselves. The table revealed that cost incurred on labour within the state was very less as compared to the cost incurred on labour outside the state.

It can be seen from the table 5.7 that in district Shimla out of the total average labour cost of Rs. 69343 per apiary per annum, out of which Rs. 12343 per apiary per annum was within the state and Rs. 57000 per apiary per annum was outside the state. In percentage term, in district Shimla it was 18 percent of total average cost was within the state whereas outside the state it was 82 percent. In district Kangra, it can be seen from the table that out of the total average labour cost of Rs. 75960 per apiary per annum, Rs. 14760 per apiary per annum was within the state and Rs. 61200 per apiary per annum was outside the state. In percentage term, in district Kangra it was 19 percent within the state and 81 percent was outside the state of total average labour cost.

At the overall level the total average labour cost was Rs. 73235 which have average labour cost Rs. 13765 per apiary per annum within the state and Rs. 59470 per apiary per annum outside the

state. Thus, it was found in Himachal Pradesh, the total average labour cost was calculated to be Rs. 44432, Rs. 62793 and Rs. 91520 per apiary per annum among different size of bee keepers i.e. small, medium and large, which shows an increasing tendency with an increase in the size of apiary. Further, the analysis showed that the average total labour cost within the state was 19 percent and 81 percent was outside the state. This pattern of labour utilization was in consonance with their migration pattern and production pattern which was concentrated during migratory period.

Hence, we can analyse that there was slightly difference between both the districts but district Shimla was more expansive than district Kangra for daily upkeep and all other tasks except labour used during migration.

Conclusion, Findings, And Suggestions

- It is found that the average production of honey in Himachal Pradesh is less as compared to the other states. In fact, the bee keepers of Himachal Pradesh mostly produced their honey outside the state. The average production of honey within the state was only 7 percent which was very less as compared to the percentage of average honey production outside the state that was 93 percent. Similarly, the average production of bee-wax within the state was only 8 percent which was very less as compared to the percentage of honey production outside the state that was 92 percent. The average productivity level was slightly higher in district Kangra than district Shimla due to the reason of higher flora in planes ensuring good availability of flowering crops.
- It is found that the labour cost was the cost involves on daily upkeep and all other tasks except labour used during migration. Some of the small and medium sample size bee keepers were doing daily upkeep and other related tasks by themselves. But many beekeepers from all sample size had one or two labours for the daily upkeeps and other related tasks. The average total labour cost within the state was 19 percent and 81 percent was outside the state at the overall level.
- It is suggested that the honey production has stabilized in the state after introduction of *Apis mellifera*. But experts feel that the stock has become too old and there is need for revitalizing it with fresh strains of same species. These have to be imported. Simultaneously, there is a need for conserving bio-diversity in this respect by retaining other species as well. Otherwise there is inherent danger of complete destruction of colonies by some disease or due to some other cause as happened in case of *Apis cerana*.

- It is suggested that the various equipments including bee hives used in apiculture is manufactured in the state by small entrepreneurs. As such there is large variation in quality and hence efficacy of equipment. The enforcement of standard specifications in this regard will reduce yields and hence the profitability from apiculture.
- It is suggested that there is a need to train more number of persons as compared with present level. This is desirable not only for making apiculture more popular but the large scale adoption of apiculture will result in large volume of honey available for marketing and will in turn result in development of some efficient marketing channel in future. The possibility and desirability of advance training to those who have already passed the present level may also be worked out.
- It is suggested that apiculture is not feasible in all areas due to requirement of flora having sufficient quantity of nectar. Hence, initially such areas may be listed where apiculture is commercially feasible. The activity may be boosted only in such areas. In the next step the feasible areas/pockets may be surveyed thoroughly to find out the carrying capacity of such areas. A close monitoring of such areas should be ensured to limit the spread of apiculture in such areas within the respective carrying capacities. This will not only ensure good productivity but the spread of activity can be carried out on scientific lines.
- It is suggested that as was initially envisaged to find out the optimum size of an apiary in the state, but during analysis it was found that the concept of break even analysis cannot be applied as the fixed cost also varies with the size of apiary. However, the opinion of experts was that under the present conditions of the state and with the assumption that one man is available for maintenance and look after, an apiary of 70-90 is optimum. One person can handle this apiary during migration as well as stay. Thus, it is recommended that apiaries consisting of 75 bee colonies be encouraged to optimize the productivity level in the state.

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