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Research Article

An Economics Analysis of Honey Production in Baghpat District of Western Uttar Pradesh

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ABSTRACT

This study of Beekeeping, considered to be a 'no investment-profit-giving' venture, is an age-old tradition in India. The diversity of Bee- flora and varied agro-climate conditions in Uttar Pradesh offers enormous potential for the development and growth of apiculture. The district has six development blocks out of which two bocks, namely Baraut and Baghpat blocks were selected randomly for the study. Keeping low number of Honey bee producers in the study area, all 10 Honey bee producers. On the basis of Honey box unit, these bee producers were categories in two categories, i.e. 1-100 box and 101-200 box. The primary data were collected by survey method with respondents through scheduled personal interviews. The income from honey / box / annum came to Rs. 8077.36 in 1-100 box category while Rs. 8514.36 in 101-200 box category and the average income / box / annum came to Rs. 8295.83. The table also shows the category wise input-output ratio. The average of Input-Output Ratio came out to 1:3.65, while category wise, it came to 1:3.45 for 1-100 box category and 1:3.85 for 101-200 box category. The Operational cost of honey production/kg came to Rs. 57.87 for 1-100 box category while Rs. 50.91 for 101- 200 box category. The average operational cost came to Rs. 54.39. The operational cost of 1-100 box category and 101-200 box category came to Rs. 162.13 and Rs. 169.09 respectively. The average return over operational cost came to Rs. 165.61. This study is that Honey Production is a good combination for mixed farming because it requires less area of land, small capital, and high return. So those farmers who have less area of land should adopt honey production as a subsidiary occupation.

Keywords: *Apiculture, Honey Production, Bee- flora, Beekeeping.*

INTRODUCTION

Apiculture, commonly known as Beekeeping, is the maintenance of artificial beehive colonies with the objective of producing honey and it's by-products. "Bees" is the second-largest topic of research after humans. India is an agricultural economy. Beekeeping significantly contributes in the diversification of agriculture.

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Agriculture diversification refers to a subsistence kind of farming wherein farmers cultivate varieties of crops on a piece of land and undertake several enterprises on their farm portfolio. Household food and income security were the primary concern of agricultural diversification. In recent decades, agricultural diversification is gaining importance and considered as panacea for the many problems of the agricultural development of the country. At the country level, diversification is supposed to increase the extent of self-sufficiency of the country. At the regional level, diversification is being promoted to mitigate negative externalities associated with mono-cropping. The option or agriculture diversifications available to Indian farmers are poultry, dairy, pig farming and beekeeping. Among these options, bee keeping is an easy to run at the farm level by the farmers. Beekeeping required less amount of money to start but given high value product in the form of honey and wax. Beekeeping is agriculture and forest-based decentralized industry. It is practiced as a pollution-free subsidiary, complementary, commercial or single family-based business enterprise. Ninety percent of pollinations in cross-pollination crop in the world are being carried out by the bees only, and in its absence, the total production of field crops and fruits will be reduced to one fourth (Jain et al., 1978 & Vaidya et al., 1993). Beekeeping is the practice of keeping and managing honey bees, which contribute immensely to the welfare and economy of mankind. The success of this small cottage industry depends upon planned bee management technology. Honeybees not only provide honey, beeswax, royal jelly, propolis and bee venom which are useful products from medical and commercial point of but also play a vital role in the pollination of various fruits & crops.

Mahatma Gandhi also introduced Beekeeping as an enterprise in his constructive programme to maximize self-employment through creativity and human dignity. Realizing its importance of employment generation of village level, state governments give more focus on Beekeeping and started a project "Beekeeping programme" under which state government provides 40% subsidies on Honey produced of some restrictions. In the year 2015-16 KVIC took up a target of training 2.00 lakhs persons to support new beekeepers in the country.

Keeping in view the importance of Honey production; the present study an attempt the following objectives in the study area.

1. To Estimate the production of cost and return of honey in the study area.
2. Identification of different marketing channels for honey marketing in the study area.

MATERIALS AND METHODS

The present research work was carried out in Baghpat district of Uttar Pradesh, the district has six development blocks out of which two bocks, namely Baraut and Baghpat blocks were selected randomly for the study. For the selection of Honey bee producers a list of Honey bee producers was prepared with the help of agriculture department of each block and there village heads for each selected village. 10 Honey bee producers were identified in both selected village. Keeping low number of Honey bee producers in the study area, all 10 Honey bee producers were selected for purpose, on the basis of Honey box unit these bee producers were categories in two categories *i.e.* 1-100 box and 101-200 box. Data collected for study pertaining to the period 2016-17. The primary data were collected survey method with respondents through schedule by personal interview.

Collected data were tabulated according to need and purpose of study. Simply tabular analysis of data was done to estimate the average size of holding, education status, sources of credit selected Borrowers.

ANALYTICAL TOOLS:

The weighted mean is the most important tool for this study-

$$X_w = \text{Weighted arithmetic mean} = \frac{\sum \mathbf{WX}}{\sum \mathbf{W}}$$

Where, X_w = Weighted arithmetic mean W are the weights assigned to variable X

$$X_w = \frac{\sum \mathbf{WX}}{\sum \mathbf{W}} = \frac{\mathbf{W_1X_1 + W_2X_2 + W_3X_3}}{\mathbf{W_1 + W_2 + W_3}}$$

We multiply weights by X and then obtain WX and then divided the total ∑WX by total weights ∑X.

RESULTS AND DISCUSSION

This chapter deals with the various aspects of Bee keeping along with discussion and interpretation of the result. Various aspects of Beekeeping were analyzed. The results obtained have been resented under the following heads:

- Cost of Production of Honey /Box / Annum.
- Production of and Return from Wax / Box / Annum.
- Return from Honey Production / Box / Annum.
- Net Profit from Honey Production / Box / Annum.
- cost of Production of Honey / Kg.
- Income and Operational Cost of Honey Production.

Table No. 1: Total Cost of Production of Honey / Box (in Rs.)

S.No.	Item /Category	No. of box (1-100)	No. of box (101-200)	Average
(A)	**Fixed Cost**			
(i)	Interest	215.2 (21.05)	246.05 (26.53)	230.62 (23.66)
(ii)	Depreciation	269 (26.31)	307.57 (33.16)	288.28 (29.57)
(iii)	Rent	119.04 (11.65)	60.86 (6.56)	89.95 (9.23)
(iv)	Salary	419.04 (40.99)	313.04 (33.75)	366.04 (37.54)
	Sub Total	1022.28 (100)	927.52 (100)	974.9 (100)
(B)	**Variable Cost**			
(i)	Raw Material	1209.76 (85.56)	1159.29 (87.88)	1184.52 (86.68)
(ii)	Packing	76.76 (5.43)	78.60 (5.96)	77.68 (5.68)
(iii)	Power	23.80 (1.68)	12.06 (0.91)	17.93 (1.31)
(iv)	Water	23.80 (2.28)	8.91 (0.68)	16.35 (1.20)
(v)	Transport	32.19 (2.28)	25.97 (1.97)	29.08 (2.13)
(vi)	Miscellaneous Expenses	47.61 (3.37)	34.34 (2.60)	40.97 (3.00)
	Sub Total	1413.92 (100)	1319.17 (100)	1366.545 (100)
	Total Cost (A+B)	2436.2	2246.7	2341.45

*Figure in Parenthesis indicate percentage

Table No. 1 shows the total cost of production of honey / box / annum. Table further indicates that the average cost production of honey came to Rs. 2341.45 / box / annum. It varies for Rs. 2436.2 to Rs. 2246.7 / box / annum. This variation is due the difference in the number of boxes. Among the items of fixed cost expenditure, salary came first, i.e. 37.54% of the total fixed cost while expenditure on depreciation came second, i.e. 29.57% of the total fixed cost. Among the variable cost items expenditure on raw material alone contribute 86.68% of the total variable cost. The items of variable cost contribute 13.32% of the total variable cost. Share of fixed and variable cost

came to 41.64% and 58.36% of the total cost of production of honey / annum.

Table No. 2: Production of and Return from Wax / Box / Annum (in Rs.)

Category	No. of Box/Producer	Wax Production / Box (in Kg.)	Rate (Rs.)	Return from Wax / Box (in Rs.)
1-100	42	2.30	900	2070
101-200	184	2.35	900	2115
Average	113	2.32	900	2092.5

Table No. 2 shows the production of wax / box of 1-00 box category came to 2.30 kg while 101-200 box category came to 2.35 kg / box. The average production of wax / box came to 2.32 Kg. The average return from wax / box came to Rs. 2092.5.

Table No. 3: Total Cost of Production of Honey / Box / Annum (in Rs.)

Category	No. of Producer	No. of Box/Producer	Total Cost	Total Cost of Honey/Box (in Rs.)
1-100	5	42	1,02,322.4	2436.2
101-200	5	184	4,13,402	2246.7
Average	5	113	2,57,862.2	2341.45

Table No. 3 shows the total cost of production of honey / box. Table shows that the average total cost of production of honey / box came to Rs. 2341.45. It shows a decreasing trend as the no. of box increase. Table further shows that 1-100 box category honey producer total cost of production / box came to Rs. 2436.2 / annum while 101-200 box category honey producer total cost / box came to Rs. 2246.7 / annum.

Table No. 4: Production of Honey/ Box / Annum (in Kg.)

Category	No. of Box/Producer	Total Honey Production/Producer	Honey Production/Box
1-100	42	1612	38.38
101-200	184	7232	39.30
Average	113	4422	38.84

Table No. 4 shows the production of Honey / Box. It is revealed from the table that Honey production / box increase as the number of box increase. The average Honey production / box came to 38.84 kg / annum.

Table No. 5: Net Cost of Production of Honey / Box / Annum (in Rs.)

Category	Total Cost of honey/Box (A)	Return of Wax / Box (B)	Net Cost of Honey/Box (A-B)
1-100	2436.2	2070	366.2
101-200	2246.7	2115	131.7
Average	2341.45	2092.5	248.95

Table No. 5 shows the net cost of production of honey / box / annum. In 1-100 box category it came to Rs. 366.24 / box while in 101-200 box category it came to Rs. 131.7 / box. The average net cost of production of honey / box / annum came to Rs. 248.95.

Table No. 6: Total Return from Honey Production / Box / Annum (in Rs.)

Category	No. of Box	Total Honey Production/Box	Rate (`)	Total Return from Honey Production/Box
1-100	42	38.38	220	8443.6
101-200	184	39.30	220	8646
Average	113	38.84	220	8544.8

Table No. 6 shows the return from honey / box / annum. It is clear from the table that from limited resources return from honey production is High Table No. 8.11 reveals that average total return from honey production / box / annum came to Rs. 8544.8. It varies from Rs. 8443.6 / box / annum for 1-100 box category producer to Rs. 8646/ box / annum for 101-200 box category. This difference in return was due to large scale economy as there was big difference in No. of boxes of two categories as indicated in the table 8.11.

Table No. 7: Net Profit from Honey Production / Box / Annum (in Rs.)

Category	Total Return from Honey/Box (A)	Net Cost of Honey/Box (B)	Net Profit (A-B)
1-100	8443.6	366.24	8077.36
101-200	8646	131.7	8514.3
Overall Average	8544.8	248.95	8295.83

Table No. 7 shows the net profit from honey production / box / annum. Table further shows that the net profit from honey production / box of 1-100 box category came to 8077.36 while net profit of 101-200 box category came to 8514.3. The overall average net profit came to Rs. 8295.83 / box / annum.

Table No. 8: Total cost of Production of Honey / Kg (in Rs.)

Category	Cost of Production of Honey/Box	Honey Production/Box (Kg)	Total Cost of Production of Honey/Kg
1-100	2436.2	38.38	63.47
101-200	2246.7	39.30	57.16
Average	2341.47	38.84	60.31

Table No. 8 shows the cost of production of honey / kg. It is revealed from the table that the cost of production of honey / kg decreases as the no. of box increase. The average cost of production of honey / kg came to Rs. 60.31 category wise cost of production came to Rs. 63.47 and 57.16 for 1-100 box and 101-200 box category respectively.

Table No. 9: Income and Operational Cost of Honey Production

S. No.	Particulars	1-100 Box	101-200 Box	Average
1.	Honey Production / Box	38.38	39.30	38.84
2.	Honey Bee Producer	5	5	5
3.	Gross Income / Box / Annum	8443.6	8646	8544.8
4.	Net Income / Box / Annum	8077.36	8514.3	8295.83
5.	Input-Output Ratio	1:3.45	1:3.85	1:3.65
6.	Cost of Production / kg	63.47	57.16	60.31
7.	Operational cost / kg	57.87	50.91	54.39
8.	Return over Operational cost (Rs.)	162.13	169.09	165.61

Table No. 9 show the income from honey / box / annum came to Rs. 8077.36 in 1-100 box category while Rs. 8514.36 in 101-200 box category and the average income / box / annum came to Rs. 8295.83. Table is also show the category wise input-output ratio. Average of Input-Output Ratio came out to 1:3.65 while category wise it came to 1:3.45 for 1-100 box category and 1:3.85 for 101-200 box category.

Table also shows the Operational cost of honey production / kg came to Rs. 57.87 for 1-100 box category while Rs. 50.91 for 101-200 box category. Average operational cost came to Rs. 54.39.

Lastly table show the return over operational cost. Operational cost of 1-100 box category and 101-200 box category came to Rs. 162.13 and Rs. 169.09 respectively. Average of return over operational cost came to Rs. 165.61.

CONCLUSION

It can be concluded from the present study that Honey Production is a good combination for mixed farming because it requires less area of land small capital and high return. So those farmers who have less area of land should adopt honey production as a subsidiary occupation.

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Conflict of Interest

The author declares no conflict of interest.

Author Contribution

All authors contributed equally to establishing the topic of the research and design experiment.

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