Vidyasagar University Journal of Commerce
Vol. 16, March, 2011/ISSN 0973-5917

Financial Management of Apiculture : A Case Study

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Abstract

A survey study was conducted to study the profitability index of apiculture enterprise in Pathankot, Gurdaspur district, Punjab. Data for period of a year (2009-9010) was collected by interviewing randomly selected 10 beekeepers from a sample survey. Profitability Index of apiculture was computed by including and excluding the revenue obtained from colony selling. 3% of beekeepers sold bee colonies for earning income which was very less. The study revealed that Profitability Indices of apiculture were 2.81 and 1.88 respectively in case of inclusion and exclusion of the income received from colony selling. It showed that apiculture industry was running in profit in both cases. But in former case, the PI was higher than the latter case, therefore in order to find that which investment option is better (Beekeeping with colony selling or not colony selling) the Payback Period method of investment evaluation was used. The research findings showed that in former case the investment would take 0.35 years to pay back and in latter case it would take 0.53 years to payback the returns, hence it was concluded that beekeeping with colony selling was better investment option and a good source of income . Further, it is suggested that Govt. of Punjab should encourage the apiculture by giving timely loan at reasonable interest rate, arranging training programmes to create awareness of the latest techniques to the farmers and the book keeping procedure of the financial records, so that the beekeepers can assess the best technique of cultivation of generate quick and high rehurn.

Keywords: Apiculture, Profitability Index, Payback Method.

1. Introduction:

Agriculture in India has a long history. Today, India ranks second worldwide in farm output. Punjab is a state in northwest India. Agriculture is the largest industry in Punjab. In recent years, apiculture has also been one of the important source of income generating activity among the farmers in Punjab. Apiculture is an agro based enterprise which requires less time, money and infrastructure investment and farmers can take up for additional income generation. Five species of honey bees are found all over the world, namely Apis florea, A.cerana, A. dorsata, A. mellifera and Trigona iridipennis. However, A. cerana and A. mellifera are

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reared in hives in India. The major honey-producing states are Punjab, Haryana, Uttar Pradesh, Bihar and West Bengal. Apiculture occupies the unique position in Punjab Economy. Punjab enjoys a very favourable position in the production of honey bees. Therefore, the study was carried out in Pathankot,Gurdaspur District, Punjab, India during period of March to April, 2009 to study the financial management of apiculture enterprises. Out of 3600 households in Pathankot 76 households were involved in Apiculture in last 20 years. The present study had randomly selected 10 households out of 76 households engaged in apiculture as the sample. Among these households 3% were engaged in selling of bee colonies for earning income. The main issue related with apiculture was selling of bee colonies, most of bee farmers have mis-conception in their mind that not selling of bee colonies will have more profits in future. For this reason among 76 households only 3% were engaged in selling of bee colonies for earning income. In order to analyze the profitability position of the apiculture industries Profitability Index and Payback period method of investment evaluation were employed.

The present study has two fold objectives. The first objective is to study is there any significant difference in Profitability Index of selling bee colonies and not selling bee colonies. Second is to recommend some suggestions to improve the status of apiculture in Punjab.

This paper is organized as: following the introduction the second section leads to review of literature ,keyword description and the research methodology. The next section analysis and interpretations. The last section deals with suggestions and conclusion.

2. Review of Literature

There is an extensive amount of literature which focuses on relevance of apiculture in world agriculture industry. Ahmad and Khan (1993) presented the Financial status of beekeeping Industries in Jammu and Kashmir .In 1998 Ahmad acquainted the world with present economic status of Beekeeping Industry in Pakistan .Arshed ,Bhatti and Haq (2002) estimated the profitability of beekeeping enterprise in the Punjab,Pakistan. Eventually, recommendations are done to overcome the problems of apicultural industry in Punjab. Thomas and Pal (2006) studied the role of KVIC in beekeeping and Rural development in India. Phadke R.P (2008) listed the various benefits of beekeeping industry in Forestry,Agriculture and Horticulture like1) Generating self-employment for about a million rural and tribal population of India 2) Producing valuable bee-products worth crores of Rupees from the nectar and pollen which otherwise dry up and go waste in nature, 3) Providing employment to educated unemployed

and the most important 4) increasing yields per unit area of cross fertile crops through beepollination. .Phadke R.P (2008) proposed the training needs in beekeeping industry. The varied results depicted by all these studies motivated the researchers to empirically study the financing aspects of Apiculture sector in India.

3. Apiculture:

Apiculture is derived from the honeybee's Latin name *Apis mellifera*, meaning 'honey gatherer'. Apiculture is an agro based enterprise, which farmers can take up for additional income generation. India has a potential to keep about 120 million bee colonies that can provide self-employment to over 6 million rural and tribal families. In terms of production, these bee colonies can produce over 1.2 million tons of honey and about 15,000 tons of beeswax. Organized collection of forest honey and beeswax using improved methods can result in an additional production of at least 120,000 tons of honey and 10,000 tons of beeswax. This can generate income to about 5 million tribal families.

The equipments required for bee keeping :

1 Hive: It is a simple long box covered with a number of slats on top. The rough measurements of the box should be around 100 cm of length, 45 cm of width and 25 cm in height. The box should be 2 cm thick and the hive must be glued and screwed together with entrance holes of 1 cm wide. The slats (top bars) must be as long as the hive is wide in order to fit across and the thickness of about 1.5 cm is sufficient to support a heavy honey comb. The width of 3.3 cm needs to be given to give the bees the natural spacing they need to easily build one comb to each separate top bar.

2 Smoker : It is the second important piece of equipment. This can be made from a small tin the smoker to protect ourselves from bee stings and to control the bees.

3 Cloth: to protect our eyes and nose from stings at the time of work near the apiary.

4 Knife: It is used to loosen the top bars and to cut of the honey bars.

5 Feather: To sweep the bees from the comb.

6 Queen Excluder

7 Match box

5. Research Methodology:

The research design of the present study was basically empirical .The study was carried out in Pathankot,Gurdaspur District,Punjab,India during period of March 2009 to April 2010. Out of 3600 households in Pathankot 76 households were involved in Apiculture from last 20

years. The present study had randomly selected 10 households out of 76 households engaged in apiculture as the sample. Among these households 3% were engaged in selling of bee colonies for earning income.

The primary data was collected by interviewing and field observations. In order to analyze the profitability position (including and excluding revenue from bee colony selling) of the apiculture enterprises of Profitability Index and Payback technique of Investment Evaluation was employed. The cash outflow includes Total Fixed cost and total variable cost .The further breakup of fixed and variable cost is explained in Analysis and Interpretation .The cash inflow includes income earned by selling Wax, Honey and Bee Colonies.

6. Analysis and Interpretation:

6.1 Total Cash Outflow:

Fixed costs are those costs which do not vary with the level of output whereas variable costs are those costs which vary with the level of output. The costs considered as the fixed cost and variable costs of Apiculture Industry are explained in Table 1 and Table 2 respectively:

Table1: Fixed Cost

SN	Items	Cost/colony/year(Rs.)
1	Bee colony	195
2	Bee Hive	98.76
3	Hive Tool	0.49
4	Honey Extractor	3.85
5	Smoker	0.92
6	Bee Veil	1.94
7	Uncapping Knife	2.48
8	Stand	7.01

Table 2: Variable Cost

SN	Items	Cost/colony/year(Rs.)
1	Migration Cost	75.85
2	Labor	365.80
3	Supplement feeding	223.15
4	Comb foundation	173.33
5	Drugs	15.65

It is explicable from the Table 1 that cost incurred on Bee Colonies was the highest followed by cost of bee hive, stand etc. and other fixed costs Table 2 depicts that labor cost covered the maximum portion of the variable cost followed by the supplement feeding, comb foundation etc. milk powder.The total cost of 10 randomly selected individual bee farm is shown in Table3.

Table 3: Total Cost Outflow of individual bee farm

SN.	No. of bee colonies possessed individual beekeepers	Fixed Cost	Variable Cost	Total cost
1	8	2483.6	6878.24	9361.84
2	40	12418	34391.2	46809.2
3	53	16453.85	45568.34	62022.19
4	35	10865.75	30092.3	40958.03
5	20	6209	17195.6	23404.6
6	15	4656. 75	12896.7	17553.45
7	35	10865.75	30092.3	40958.05
8	15	4656.75	12896.7	17553.45
9	13	4035.85	11177.14	15212.99
10	10	3104.5	8597.8	11702.3

6.2 Total cash inflow

Table 4: Revenue from apiculture

SN.	Items	Revenue/colony/yr.(Rs)
1	Honey	2153.40
2	Bee colony	1092.32
3	Wax	48

The revenue generated from sale of Honey, Wax and Bee colony were considered as main source of cash inflow of bee farms in Pathankot. Income generated from sale of honey covered the largest portion of total cash inflow followed by income generated from sale of bee colonies as shown in above Table 4. But in this region some of the bee farmers did not practice selling of bee colonies. Table 5 debicts the total cash inflow including income generated from sale of bee colonies of individual bee farms and Table 6 depicts the total cash inflow excluding income generated from sale of bee colonies of individual bee farms.

Table 5: Total cash inflow including income generated from sale proceeds of bee colonies of individual bee farms

SN.	No. of bee colonies possessed individual beekeepers	Honey	Wax	Bee colony	Total Cash Inflow
1	8	17227.2	384	8738.56	26349.76
2	40	86136	1920	43692.8	131748.8
3	53	114130.2	2544	57892.96	174567.2
4	35	7536.9	1680	38231.2	47448.1
5	20	43068	960	21846.4	65874.4
6	15	32301	720	16384.3	49405.3
7	35	75369	1680	38231.2	115280.2
8	15	32301	720	16834.8	49855.8
9	13	27994.2	624	14200.16	42818.36
10	10	21534.0	480	10923.2	32937.2

Table 6 : Total cash inflow excluding income generated from sale proceeds of bee colonies of individual bee farms

SN.	No. of bee colonies possessed individual beekeepers	Honey	Wax	Total Cash Inflow
1	8	17227.2	384	17611.2
2	40	86136	1920	88056
3	53	114130.2	2544	116674.2
4	35	7536.9	1680	9216.9
5	20	43068	960	44028
6	15	32301	720	33021
7	35	75369	1680	77049
8	15	32301	720	33021
9	13	27994.2	624	28618.2
10	10	21534.0	480	22014

In order to evaluate between sale of beecolonies and not sale of bee colonies best option the the profitability index was calculated for both options. In both the options P.I. were more than 1, but in case of option I i.e. sale of bee colonies P.I. was higher than option II i.e. not sale of bee colonies as depiated in Table 7.

Table 7: Profitability Index

Profitability Index (including income generated from bee colony selling)		
Total cash outflow	Total cash inflow	Profitability index
1170.23	3293.72	$\frac{PV.Cash\ inflow}{PV.Cash\ outflow}$=2.81
Profitability Index (excluding income generated from bee colony selling)		
Total cash outflow	Total cash inflow	Profitability index
1170.23	2201.4	$\frac{PV.Cash\ inflow}{PV.Cash\ outflow}$ =1.88

In order to validate the results of the above used technique another technique was used i.e. Payback Method. In this technique the investment option having the shortest payback period is considered to plough back investments early and considered as better option. It was found that the bee farms practice bee colony selling option has shorter payback period(0.355 yrs) than the other (0.53 years) as depicted in Table 8.

Table 8: Payback period

Payback period method (including income generated from bee colony selling)		
Total cash outflow	Total cash inflow	Payback period
1170.23	3293.72	$\frac{Cashoutflow}{Cash\ inflow}$=0.355 years
Payback period method (excluding income generated from bee colony selling)		
Total cash outflow	Total cash inflow	Payback period
1170.23	2201.4	$\frac{Cash\ outflow}{Cash\ inflow}$ =0.53years

7.Conclusion:

The above empirical analysis showed that the apiculture enterprises in Pathankot were running in profit. Therefore, it is suggested that Government should encourage apiculture enterprises as this is cheapest and good source of income for rural people in Pathankot by providing timely loan facilities at reasonable interest rate, arranging training programmes which creates the awareness of the latest techniques to farmers and help them to keep their financial records so that they are able to assess that which option will yield them higher and faster returns.

8. References:

1. Abrol D.P., *Environmental factors influencing flight activities* in honeybees, Apis cerana Feb. and Apis mellifera L. (Hymenoptera: Apidae): Indian Bee J. 60 (2) (1998), 71-75
2. Ahmad,B.and J. Khan ,1993. *Profitability of Bee keeping in Azad Jammu* and Kashmir.Pak.Etomol,15:87-89
3. Anon., Honey Buyer–Seller Meet and Conference – 2006, Indian Society of Agribusiness Professionals, New Delhi, 26–27, June 2006
4. Crane, E., *A Book of Honey*, International Bee Research Association, Oxford University Press, Oxford, 1980, 1st edn, p. 198.
5. Khan, M. Y. (1997), *Financial Services*, Tata McGraw Hill Publishing Co. Ltd., N. Delhi, p. 78.
6. Misra R.C., Sharma S.K., *Technology for management of Apis mellifera in India: Perspective in Indian Apiculture*: *AgroBotanica*, 1997-1998, pp. 131-149
7. Mohana Rao, Singh T.S.M.S., Subba Rao K., *Top ventilation helps A. mellifera L. colonies to increase honey production during rubber nectar flow: Indian Bee J*., 60 (2) (1998), 108-110
8. Singh, D., *Curr. Sci., 2000*, 79, 1155–1157.
9. Singh, D., Neoliya, N. K. and Kumar, S., *In Proceedings of Seventh IBRA Conference on Tropical Bees: Management and Diversity*, Thailand, 19–25 March 2000, pp. 239–242.

10. Srivastava, H. K. and Singh, D., *Bioresour.Technol.*, 2006, 97, 1578–1581

11. Soman A.G., Chawda S.S., A contribution to the biology and behaviour of dwarf bee, A. florea F. and its economic importance in Kutch, Gujarat, India: Indian Bee J., 58 (2) (1996), 81-88

12. Suryanarayana M.C., K. Subba Rao, *A. cerana for Indian Apiculture and its management technology: Perspective in Indian apiculture: AgroBotanica,* 1997-1998, pp. 66-118

13. Thakar C.V., *Practical aspects of bee management in India with Apis cerana indica: Apiculture in Tropical Climates*, 1976, pp. 51-59