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## Prospects of Apiculture in The Punjab

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**Abstract:** The study estimates the profitability of beekeeping enterprise in the Punjab. For this purpose twenty five beekeepers were selected. It was found that the average cost of production of 05 bee hives of amateur and 100 professional beekeeper for first and second year is Rs.3,202, 1,502 and 90,844, 95,000 with gross income of Rs. 5,250, 15,500 and 210,000, 520,000, respectively. The net income came to Rs. 2,048, 13,998 and 119,156, 425,000, respectively. Eventually, recommendations are made to overcome the problems that the apiculture! industry is facing in the Punjab.

**Key words:** Apiculture, Punjab

### Introduction

The abundance of bee forage plants throughout the year determines the growth of bee colony and hence the productivity of beekeeping. Many forest-based and cultivated plants can provide nectar and pollen for foraging bees. Pakistan is also endowed with more than 700 plants species which are known to be visited by honeybees. This available bee flora can support 0.4 to 0.5 million honeybee colonies, producing 6,000-10,000 tons of honey per annum (Ahmad, 1985). Despite fairly abundant floral sburces and quite suitable climate for keeping bees in Pakistan, honey production was estimated at 610 tons in 1988 (Ahmad, 1988). This reveals that the present level of honey production is much below to its exploitable potential.

Adoption of beekeeping among other factors is influenced by its profitability associated with this enterprise. Unfortunately, little information is available about this aspect particularly in the Punjab. Therefore, the study was conducted to work out the economics and to identify the constraints of beekeepers, this enterprise is facing and their possible solution.

To work out the economics of this enterprise in the province of the Punjab, data were collected from twenty five respondents of eleven districts viz; Attack, Rawalpindi, Chakwal, Khushab, Sargodha, Jhelum, Gujranwala, Sheikhpura, Lahore, Kasur and Faisalabad during 1996-97 through a well designed questionnaire (Ahmad and Khan, 1993).

The results (Table 1) show that the average cost of production of 05 hives of amateur beekeeper for first and second year was 3,202 and Rs. 1,502 with net income of Rs. 2,048 and 13,998, respectively. Similarly, average cost of 100 colonies of professional beekeeper for the same period came to Rs. 90,844 and Rs. 95,000, with net income of Rs. 119,156 and Rs. 425,000, respectively while the honey production ranged from 04-17 Kg and 12-37 with an average of 15 and 30 Kg in case of amateur and professional beekeeper, respectively, as against 22.46 Kg reported by Ahmad and Khan (1993).

Higher honey production in case of professional beekeeper than the amateur one was due to timely migration of honey bee colonies to different floral spots as none of the locality and season in the Punjab, support the blooming of bee flora throughout the year. Major portion of the honey is produced from brassica, citrus, phulai, berseem and ber. A few other plants, namely loquat, shesham, mesquite, deciduous fruits, bhaikar, sunflower, grunda etc., also contribute a fairly large quantity of honey (Table 2). However, the period from July-August where no bee flora is available, supplemental feeding in the form of sugar syrup (1:1) and pollen substitutes (Corn flour, Gram flour etc.) is served to the bees to

meet their feeding requirements. Ahmad (1988) has reported that the honey yield per colony obtained by the migratory beekeepers is 02-03 times higher than the amateur ones.

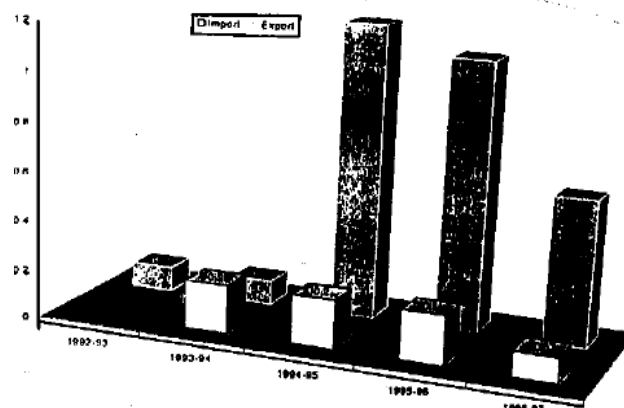


Fig. 1: Import and Export of Honey, Quantity wise (000' Tonnes) in Pakistan

In the recent years the beekeepers are also exporting surplus honey to the Middle East countries and earning foreign exchange (Fig. 1 and 2), besides marketing their products-Packed honey, wax, pollen, propolis etc in the local market.

Beekeepers/farmers can not only uplift their social status from the marketing of their products but also increase their corps' yield with the pollination benefits by honeybees (Fig. 3).

**Problems in Apiculture:** Apiculturists are facing a number of problems in the province, which are as under:

01. Lack of knowledge about the up-to date management practices like quality queen rearing, control of diseases, bee pests etc.
02. Limited credit facilities for establishing an apiary.
03. Bee disease-mite infestation, European and American Foul Brood.
04. Bee pests like green bee eater and hornets especially in summer, wax moth, ants etc.
05. Lack of quality standards for bee products.
06. Inadequate processing and storage facilities.
07. Higher fare charges for migratory beekeepers.

Table 1: Economics of Apiculture in the Punjab

Particulars	Mateur Beekeeper		Professional Beekeeper	
	05		100	
No. of European Bee Colonies				
Capital Expenditure (Rs):	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	1 <sup>st</sup> Year	2 <sup>nd</sup> Year
Cost of Bee Colony at Rs. 2,500/-	12,500	-	250,000	-
Wooden Hives a/w Suppers and Frames at Rs.650/-	3,250	3,250	65,000	65,000
Honey Extractor at Rs. 2,500/-	-	-	2,500	-
Comb Foundation Sheets at Rs. 175/-per Kg	-	875	-	35,000
Miscellaneous Beekeeping Tools	300	-	600	-
<b>Total</b>	<b>16,050</b>	<b>4,125</b>	<b>318,100</b>	<b>100,000</b>
<b>Raw Material:</b>				
Pollen and Nectar	Free from Flowers of Crops, Vegetables, Fruits, Wild Vegetation etc.			
Cost of Production:				
Migration Charges	-	-	10,000	15,200
Supplemental Feeding	500	500	1,000	2,000
Rent of Store	-	-	4,000	4,800
Bee Attendant at Rs. 2,400/-per annum	-	-	24,000	48,000
Depreciation (10%) on Equipment	355	325	6,810	10,000
Interest (14%) on Capital Expenses	2,247	577	4,534	14,000
Miscellaneous Expenses	100	100	500	1,000
<b>Total</b>	<b>3,202</b>	<b>1,502</b>	<b>90,844</b>	<b>95,000</b>
<b>Gross Income</b>				
Honey Production at 15 and 30 Kg/Colony in each case, respectively.	75 Kg	150 Kg	3,000 Kg	6,000 Kg
Income from Honey at Rs. 70/-	5,250	10,500	210,000	420,000
Income from Swarms per Split at Rs. 1,000/-	-	5,000	-	1000,000
<b>Total</b>	<b>5,250</b>	<b>15,500</b>	<b>210,000</b>	<b>520,000</b>
<b>Net Income (Gross Income-Cost of Production)</b>	<b>2,048</b>	<b>13,998</b>	<b>119,156</b>	<b>425,000</b>

Table 2: Migration schedule of Honeybees in the Punjab

Major Bee Forage Plants	Period of Migration	Localities
Brassica	October-March	Salt Range and Potohar Region
Loquat	October-April	Potohar Region
Citrus and Deciduous fruits	March-April	Sargodha, Sahiwal and Faisalabad
Mesquite, Shesham, Phulai, Bhikar, Grunda	April-May	Taxila, Islamabad, Rawalpindi and Murree Hills.
Berseem, Sunflower	May-June	Central Punjab, Rawalpindi, Taxila
Ber	August-September	Chakwal, Attock

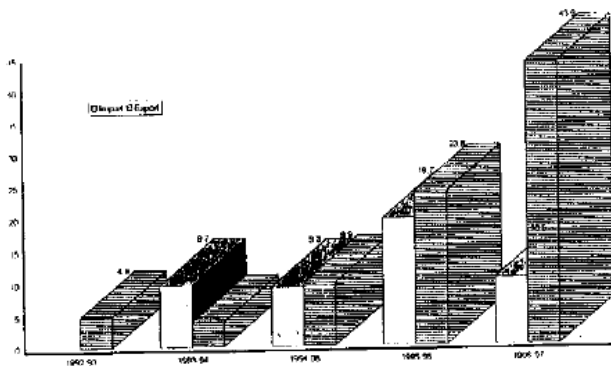


Fig. 2: Import and Export of Honey, Value wise (Million Rupees) in Pakistan

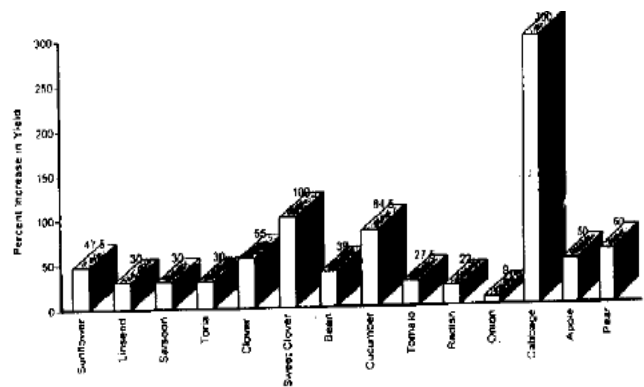


Fig. 3: Effect of honeybee pollination on the yield of some crops, vegetables and fruits

08. Lack of information about bee forage plants.
09. Higher rent charges of floral pockets by the Govt. agencies and land owners.
10. Lack of communication between farmers and beekeepers while spraying crops/orchards with pesticides.
11. Lack of knowledge about the pollination benefits of bees in the farming community.
12. Inadequate export facilities from the Govt. sector.

### Suggestions

01. Most of the beekeepers are using traditional bee management practices regarding the control of diseases and pests, food supplements etc. and are not familiar with modern technology. Ahmad (1988) has reported that the honey yield can be substantially enhanced by adopting modern bee management practices.
02. Co-ordination of research, training and extension activities
03. For the effective control measures against the pests and diseases of bees, availability of good quality chemicals, must be ensured.
04. It is suggested that the availability of adequate institutional credit be ensured for procurement of highly priced mollifiers colonies.
05. Establishment of standards for bee products and equipments.
06. Promotion of beekeeping as a productive business operation and important component of forest and agricultural ecosystem.
07. Introduction of national bee breeding programme to meet local demand for good quality queens.
08. Efforts should be made to strengthen the promotion of beekeeping and apiculture' products and services. In this way consumer will become more aware of the value and uses of bee products.
09. Making of policies concerning foraging rights and pest control operations harmful to bees.
10. Apiculturists must continue to educate themselves regarding all aspects of beekeeping.
11. Beekeepers should consider carefully the experiences of their counterparts and should exchange ideas.
12. By revitalizing public education regarding the importance of bees and their role in ecosystem reconstruction and rehabilitation (Hobbs and Hopkins, 1990).
13. The formation of beekeeping associations or cooperatives can encourage contacts between apiculturists.

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