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Adoption of beekeeping as an enterprise in Haryana

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Abstract

Present study was conducted in Haryana state to see the adoption of beekeeping and constraints there in. Data was collected from six hundred people imparted training by SNIATTE, CCS HAU, Hisar during the year 2014-18. Study revealed that beekeeping is a male dominating enterprise carried out by young age people having low level of education, landless to small land holding and low income. Adoption of beekeeping as an enterprise was low, might be due to various constraints like priority to other activities, lack of land and resources, finance, marketing of honey and lack of quality equipments etc. At the same time, some factors like low initial investment, less labor intensive, less technical and good return favored the adoption of beekeeping. To support adoption of beekeeping, increase in awareness, provision of loan facilities and improvement in marketing structure of bee products are the major steps necessary to be taken by the government and other organizations.

Keywords: adoption, beekeeping, constraints, enterprise

Introduction

Beekeeping plays a crucial role in the present context of commercialization of agriculture and liberalization of economy. It offers a great potential for income generation, poverty alleviation, sustainable use of forest resources and diversifying the export base. The most important service the honeybees render to mankind is pollination of agricultural and forestry crops (Commonwealth, 2002) [2]. In agricultural crops, about ninety per cent of pollination is being carried out by the bees only, and result in about thirty three per cent increase in total production of agricultural and fruits crops (Vaidya and Mehta, 1993) [12]. In contrast with other agricultural activity such as livestock, poultry and fish farming, beekeeping is a relatively low investment venture that can be undertaken by most people (women, youths, the disabled and the elderly). Apiculture does not need any raw material in usual sense as nature provides the same in the form of nectar and pollen. Also, it does not bring any pressure on agriculture land and moreover, it produces honey, beeswax, pollen, propolis from the flowers which otherwise dry up in nature and go waste.

Further, beekeeping which requires very little resource, land and time, could be incorporated into the livelihood strategy of smallholder farming households in order to provide an additional source of income and to spread risk. In addition, bee products may be used domestically as food or to make traditional healthcare remedies (Lowore *et al.*, 2010) [7]. Beekeeping is emerging as a very successful agricultural practice for rural area based people in developing countries like India, mainly due to shrinkage of land holding, low cost and high return enterprise. However, for the effective popularization of this activity among the youth and farming communities, the adoption of beekeeping as an enterprise and factors affecting thereof have to be evaluated which may be helpful in designing the extension strategy and policy making for the upliftment of farming communities and unemployed youth of the country.

Material and Methods

The present study was conducted at CCS Haryana Agricultural University, Hisar during the year 2014-18. During this period, Saina Nehwal Institute of Agricultural Technology, Training and Education, Directorate of Extension Education, imparted training on beekeeping to a number of people belonging to different parts of the state. For conducting this study, a year after impartation of the training, 150 trained persons per year were contacted randomly for seeking the information, and in this way a total of 600 persons were contacted during the

period of four years. Accordingly, exhaustive questionnaires were prepared and used to generate all relevant information required for conductance of this study. Generally, the instrument was designed to generate information in the following areas: gender, education, annual income, factors affecting the adoption of beekeeping etc. The data was analyzed by MS Excel software.

Results and Discussion

Descriptive statistics of the respondents

Data regarding socio-economic profile revealed that majority of the respondents were male contributing about 94 per cent to both the category of adopter and non-adopter which indicates that beekeeping is dominated by the male than their female counterparts (Table 1.). It was observed that in both of the categories of adopter as well as non-adopter, most of the respondents fell in the young age group (18-35 yrs) i.e. 69.7 and 75.5 per cent, respectively followed by middle age group (35-50 yrs) having 27.7 and 21.8 per cent adopters and non-adopters, respectively. This inferred that people falling in young and middle age were more involved in beekeeping activities. This finding is supported by Kareem *et al.* (2017) ^[5] that about 87.5 per cent of beekeepers were below the age of 50 years.

Regarding educational status, most of the respondents (79.8%) adopting beekeeping were educated up to the senior secondary level and this percentage was higher than the corresponding non-adopter category (71.1%). These results

were in accordance with the study conducted by Lal *et al.* (2012) ^[6] and Verma *et al.* (2018) ^[13]. It showed that less educated people are adopting beekeeping more compared to the higher educated. It might be due to that people having higher education could have more chances of government/private sector jobs compared to the less educated. Among beekeeping adopters, more than sixty per cent of the respondents were agriculturist followed by labor class (30.3%), higher than in corresponding category of non-adopters i.e. 57.8 and 21.8 per cent, respectively. This showed that beekeeping is being adopted by the farmers as an additional source of income and by labor class as a self-employment. The percentage of housewives who adopted beekeeping was very low i.e. merely 0.8 per cent. It might be due to some social restrictions imposed by the society on females and their business in house hold activities. The data further revealed that maximum number (46%) of the respondents adopting beekeeping were having marginal size of land holding (less than 1.0 ha) followed by landless (37%) and small (23%) land holding (1.0 to 2.0 ha). It indicated that beekeeping is being adopted as a main or subsidiary occupation by the landless and marginal to small farmers. Majority of the respondents (59.7%) adopting beekeeping were having low annual income (Rs. 1.0 lakh/annum) followed by medium (35%) with annual income of Rs. 1.0-2.5 lakhs per annum. It inferred that the beekeeping can be a better source of additional income for the people having low to medium annual income.

Table 1: Descriptive statistics of the respondents

Description	Variables	Adopter (n=119)		Non Adopter (n=481)	
		f	%	f	%
Sex	Male	112	94.1	453	94.2
	Female	7	5.9	28	5.8
Age (yrs)	18-35 (Young)	83	69.7	363	75.5
	35-50 (Middle)	33	27.7	105	21.8
	>50 (Old)	3	2.5	13	2.7
Qualification	Up to Primary	3	2.5	18	3.7
	Middle	8	6.7	28	5.8
	Matric	34	28.6	112	23.3
	Sen. Secondary	50	42.0	184	38.3
	Diploma	2	1.7	23	4.8
	Graduate	19	16.0	91	18.9
	PG	3	2.5	25	5.2
Occupation	Agriculture	75	63.0	278	57.8
	Labor	36	30.3	105	21.8
	Business	2	1.7	19	4.0
	Service	0	0.0	12	2.5
	Housewife	1	0.8	12	2.5
	Student	0	0.0	39	8.1
	Retiree	5	4.2	16	3.3
Land Holding	Landless	37	31.1	130	27.0
	Marginal farmer (<1 ha)	46	38.7	184	38.3
	Small farmer (1-2 ha)	23	19.3	92	19.1
	Large farmer (>2 ha)	13	10.9	75	15.6
Annual income	Low	71	59.7	266	55.3
	Medium	42	35.3	140	29.1
	High	6	5.0	75	15.6

Adoption of beekeeping

The data revealed that the adoption rate of beekeeping was low (18.7%) during first year and increased to 23.3 per cent during the second year of study i.e. 2015-16 (Table 1). In the next two years of study, again fluctuation in adoption rate was observed and 17.3 and 20.0 per cent adoption of beekeeping was recorded in third and fourth year, respectively. The

overall adoption of beekeeping as an enterprise was 19.8 per cent during whole period of the study which was comparatively low which might be due to various difficulties faced by the people in starting of a new venture. Singh *et al.* (2016) ^[10] also reported low level of beekeeping adoption by the trainees which ranged only from 18 to 27 per cent. It may be improved by imparting more skill trainings and making the

people aware about the two fold benefit of the activity i.e. income from bee products and increase in crop yield.

Table 2: Adoption of beekeeping among trained persons (n=150)

Year	Adoption		Non-adoption	
	f	%	f	%
1 st year	28	18.7	122	81.3
2 nd year	35	23.3	115	76.7
3 rd year	26	17.3	124	82.7
4 th year	30	20.0	120	80.0
Mean	29.8	19.8	120.3	80.2

Factors adversely affecting adoption of beekeeping

To find out the factors adversely affecting the adoption of beekeeping as an enterprise, the multiple responses of the respondents were received as presented in Table 3.

Social factors

Less priority to beekeeping acted as a major and ranked first among the social factors adversely affecting the adoption of beekeeping as an enterprise as 47.6 per cent of the respondents preferred other activities. These results are in line with the findings of Heckle *et al.* (2018) [4] who also reported that beekeeping was not an attractive option for young educated people in Kenya. They prefer non-manual and more secure salaried employment. It indicated that more emphasis may be given to make beekeeping an attractive occupation by imparting trainings and making people aware about various benefits of this activity. About twenty two per cent of the respondents could not adopt beekeeping due to lack of family support, 7.3 per cent were not interested in beekeeping and 5.6 per cent of the respondents were prohibited to adopt this activities by some socio-cultural restrictions. This proportion of the respondents might be including women, as in the state like Haryana, the women are generally not allowed to venture out of the home, and remain busy in household work only.

Physical factors

Lack of land and resources ranked first among physical factors restricting the people to adopt beekeeping as an enterprise as maximum number of the respondents (47%) showed their inability to do so. It showed that inspite of no requirement of agricultural land for this activity, the landless and people having limited resources are facing problems in adoption of beekeeping as an enterprise. It might be due to the prohibition imposed by the farmers on keeping the bee hives in their field. About 14 per cent of the respondents were having fear from bees and for 10.2 per cent bee sting was allergic due to which they could not adopt beekeeping. These findings are in accordance with that of Singh and Singh (2019) [11] who reported that about 46 per cent of the trainees were of the opinion that land is necessary for beekeeping and nearly 40 per cent were afraid of bees. Some of the respondents (11.4%) suggested beekeeping as a labor intensive activity.

Economic factors

The major economic factor restricting the respondents from adopting beekeeping was lack of money to start the business (62%) and ranked first followed by lack of loan facilities (60.9%) ranking second. A study conducted by Monga and Manocha (2011) [8] on adoption and constraints of beekeeping in Haryana also pointed out shortage of credit facility a major economic constraint for starting the vocation. Similarly, Singh

et al. (2016) [10] also reported that the economic constraint was the primary hurdle in adoption of beekeeping as an entrepreneurship in Nagaland. It indicated that financial institutions are not much concerning such activities. But it might be considered by the policy makers while planning for the upliftment of the farmers and unemployed youth. As per 59.7 per cent of the respondents, marketing of the honey and other bee products was also an important economic factor adversely affecting the adoption of beekeeping as an enterprise. The existing beekeepers are supposed to sale their product at very lower price in absence of proper marketing infrastructure. The government should focus on marketing of be products and on the pattern of agricultural crops, support price for such products may also be fixed.

Table 3: Factors adversely affecting adoption of beekeeping (Multiple response) (n=481)

Factors	Particular	f	%	Rank
Social factors	Priority to other activities	229	47.6	I
	Lack of family support	105	21.8	II
	Not interested in beekeeping	35	7.3	III
	Socio-culture restriction	27	5.6	IV
Physical factors	Lack of land and resources	224	46.6	I
	Fear from bees	67	13.9	II
	Labor intensive activity	55	11.4	III
	Allergy from bee sting	49	10.2	IV
Economical factors	Lack of money to start business	298	62.0	I
	Lack of loan facilities	293	60.9	II
	Marketing problem	287	59.7	III
	Less income than expenditure	15	3.1	IV
Technical factors	Limited access to quality equipment	203	42.2	I
	Lack of skilled labor	148	30.8	II
	More technical than other activities	121	25.2	III
	Lack of complete knowledge	113	23.5	IV

Technical factors

More than forty per cent of the respondents could not start beekeeping due to limited access to quality equipments. About 31 per cent of respondents mentioned the lack of skilled labor as a reason for non-adoption of beekeeping as an enterprise. Ejigu *et al.* (2009) [3] also reported lack of skilled manpower, one of the technical constraints in adoption of beekeeping in Amhara Distt (Ethiopia). One fourth of the respondents felt beekeeping a more technical than other activities and 23.5 per cent showed their inability to do so due to lack of complete knowledge about beekeeping. Sharma and Das (2018) [9] also mentioned that inadequacy of skills and knowledge in bee farming adversely affected the adoption of beekeeping in Aasam, India. Similarly, a study conducted by Asrani *et al.* (2007) [1] on the prospects of beekeeping in Haryana and related needs, constraints and enablers also pointed out technical constraints, the major ones faced by the respondents. To improve the technical knowledge of the aspirants, more emphasis is to be given on organization of trainings and organization of farmers' groups.

Factors positively influencing the adoption of beekeeping

No doubt there are many constraints in beekeeping, but at the same time, there are several factors which make it distinct

from the other such activities and favor its adoption by the people. To find out such factors favoring the adoption of beekeeping, multiple response of the respondents were received (Table 4.). The major factor positively influencing the adoption of beekeeping was low initial investment to start and ranked first, as majority of the respondents (96.6%) reported beekeeping a low cost activity. More than ninety per cent of the respondents were of the opinion that beekeeping requires less labor and 88.2 per cent mentioned it less technical compared to the other agricultural allied activities. As per 81.5 per cent of respondents, beekeeping gives high return than expenditure compared to the other agricultural allied activities. It might be due to low initial investment and very less recurring expenditure involved in beekeeping. About forty nine per cent of the respondents adopted beekeeping for self-employment indicating it a good source of income generation.

Table 4: Factors positively influencing adoption of beekeeping (Multiple response) (n=119)

Factors	f	%	Rank
Low initial investment	115	96.6	I
Less labor intensive	110	92.4	II
Less technical activity	105	88.2	III
Higher return than expenditure	97	81.5	IV
Self-employment	58	48.7	V
Increase in production of crops	47	39.5	VI
Additional source of income	37	31.1	VII
No requirement of land	7	5.9	VIII
Taken over of family occupation	6	5	IX
Amateurishly	5	4.2	X

As honey bees are good pollinators and improve the crop yield, 39.5 per cent of the respondents adopted beekeeping to increase the production of crops. Thirty one per cent of the respondents adopted beekeeping as an additional source of income which showed its importance for increasing the family income. About six per cent of the respondents showed interest in beekeeping as it requires no agricultural land. It indicated that beekeeping can be a good source of income for land less people. Some families might have been carrying out this business since earlier and hence 5.0 per cent of the respondents took over it. Some people (4.2%) started beekeeping amateurishly.

Conclusion

It has been deduced from this finding that beekeeping may be a source of income generation for the rural people, unemployed youth in particular. It may also add to the family income of farmers, especially the marginal and small ones. Beekeeping may be adopted for self employment as it requires low initial investment, gives high return than expenditure and is less technical and labor intensive as compared to the other agricultural activities. So, this activity may prove a good alternate of income generation, particularly for the landless and low income people. In order to support beekeeping adoption, efforts should be focused on continuing and intensifying initiatives that increase awareness and knowledge, particularly in low traditional beekeeping areas. Despite many challenges, beekeeping could be a viable venture that contributes significantly to increase and diversify the income of many rural households. Lack of finance for setting up of business and marketing of honey are the two major constraints in beekeeping which most of the people

usually face. For this, the rural banks in particular, should come forward for providing loan facilities to the beekeepers, and government to provide subsidy and fix the support price of honey on pattern of agricultural crops.

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