

## Impact of Entrepreneurial Behavioural of Farmers For Increasing Their Income Through Bee Keeping Activities

S.S. Kushwah<sup>1</sup>, S.K. Badodiya<sup>2</sup>, U.P.S.Bhadauria<sup>3</sup> and R.S.Gurjar<sup>4</sup>

1. Scientist; 2. Principal Scientist; 3. Joint Director Extension and Ph.D. Scholar  
RVSKVV Gwalior, MP, sbadodiya@gmail.com

### Abstract

*This study was conducted in adjoining area Morena and Shivpuri city of Madhya Pradesh during 2018. A list of farmers who were concerned in bee keeping farming was prepared. From this list 200 bee keeping farmers were selected by random sampling method. The study revealed that majority 65.5 percent respondents had medium level of entrepreneurial behavior about bee keeping management practices. The entrepreneurial behavior was positively and significantly related with education, bee keeping experience, land holding, livestock possession, occupation, annual income, material possession, extension contact, economic motivation, market orientation, scientific orientation, attitude of bee keeping farmers towards bee keeping farming and knowledge of improved dairy management practices found to have positive and significant relationship with entrepreneurial behavior. Coefficient of determination  $R^2$  was 0.98 which indicates that 97.00 percent variation in the entrepreneurial behavior of bee keeping farmers was explained by sixteen independent variables which were selected for study. Majority of the beneficiary respondents (58.00%) increased their income in high group (> Rs.2,00,000).*

**Key words:** Entrepreneurial behavior, Bee keeping farmers, Bee keeping management practices, Planning ability, Coordinating ability and Self confidence.

### Introduction

The potential corridor for double the farmers income (DFI) by 2022 has to arise from productivity of the crop, cost reduction technologies, diversification in farm and non-farm activities, pricing method of both inputs and outputs, adoption of risk management tools, level of wage rate and salaries for farm labour as well as different sources of non-farm activities. Keeping this at the forefront, the pathway has been formulated integrating science and technology, extension, institutions and policies to double the farmers' income.

Beekeeping has great scope in our country to develop as prime agro-horticulture based rural cottage industry, ideally suited to the rural, tribal, youth and other categories of the weaker sections of society. The peculiarity of this industry is

that it does not require any raw material from the artisan like other industries. The raw material is in the form of nectar and pollen from flowers which is freely available in nature. Beekeeping as an enterprise, can be started by anyone who takes keen interest, man or woman, skilled or unskilled, having own land or not. This enterprise implies a technology that is simple, easily accessible; demanding the least capital investment and the produce (honey and wax) can be stored for a long period.

Honey is largely used on a small scale as well as at an industrial level in baked products, confectionary, candy, marmalades, jams, spreads, breakfast cereals, beverages, honey products and many preserved products. Entrepreneurial behavior is a preference for innovation and

a change in existing institutions and the status quo. Keeping the above facts in view, the present study has been designed

**Materials and Methods**

The present investigation was conducted during 2018 in adjoining area of Morena and Shivpuri city Madhya Pradesh due to the maximum number of farmers engaged in bee keeping farming. A list of farmers who are practicing bee keeping was prepared. From this list 200 bee keeping farmers were selected by random sampling method. The primary data were collected from the respondents

**Results and Discussion**

**Personal characteristics and entrepreneurial behavior of bee keeping farmers-**

The data in Table-1 confirmed that a good number of the respondents (46%) belonged to middle age group and 28.00 per cent of the respondents educated up to primary level followed by 21.50 percent of the respondents had education at high school level. Majority of the beneficiary respondents (52.50%) belonged to Other Backward Caste (OBC), followed by General Caste category (26.00%) and more than half of bee keeping farmers

to analyze the entrepreneurial behavior of bee keeping farmers.

by using a semi-structured interview schedule, which was pre-tested before actual application. The respondents were interviewed individually by the investigator. Secondary data were collected from records and statistical office. Statistical tools like- mean, SD, percentage and Karl Pearson’s coefficient of correlation and multiple regression analysis were used for analysis of data.

(42.50%) had high level of experience (above 10 years) in bee keeping. The data in Table-1 indicate that less than half of (45.00%) the bee keeping farmers possessed low level of bee keeping material possession and maximum (42.50%) bee keeping farmers possessed up to 1 ha. of land. The data exhibits the distribution of bee keeping farmers according to their occupation.

**Table 1 Profile of the bee keeping farmers**

SN	Traits	Category	Frequency	Percentage	Mean	SD
1	Age	Young (below 35 yrs)	51	25.50	2.03	0.73
		Middle(35-55 yrs)	92	46.00		
		Old(above 55 yrs)	57	28.50		
2	Education	Illiterate	40	20.00	1.74	1.28
		Up to primary	56	28.00		
		Up to middle	40	20.00		
		High school	43	21.50		
		Higher sec. & above	21	10.50		
3	Caste	General	52	26.00	1.95	0.68
		OBC	105	52.50		
		SC/ST	43	21.50		
4	Farming experience	Low(below 5 yrs)	51	25.50	2.17	0.81
		Medium(5-10 yrs)	64	32.00		
		High(above 10 yrs)	85	42.50		
5	Livestock possession	Low (<0.99)	90	45.00	1.84	0.85
		Medium (0.99-2.69)	51	25.50		
		High(>2.69)	59	29.50		
6	Land holding	Marginal (up to 1 ha.)	85	42.50	2.09	1.40
		Small (1.1 to 2 ha.)	32	16.00		

		Medium (2.1 to 5 ha.)	37	18.50		
		Large (above 5.1 ha.)	46	23.00		
7	<i>Occupation</i>	Bee keeping Farming	73	36.50	1.85	0.75
		Bee keeping Farming Agriculture	83	41.50		
		Bee keeping Farming Agriculture+ Other	44	22.00		
8	<i>Annual income</i>	Low(<0.87)	107	53.50	1.70	0.82
		Medium(0.87-2.53)	45	22.50		
		High(>2.53)	48	24.00		
9	<i>Material Possession</i>	Low(<15.52)	49	24.50	24.87	9.31
		Medium(15.52-34.14)	123	61.50		
		High(>34.14)	28	14.00		
10	<i>Mass media participation</i>	Low(<2.74)	65	32.50	4.79	2.06
		Medium(2.74-6.86)	107	53.50		
		High(>6.86)	28	14.00		
11	<i>Extension contact</i>	Low(<7.65)	46	23.00	11.0	3.35
		Medium(7.65-14.0)	118	59.00		
		High(>14.0)	36	18.00		
12	<i>Attitude towards agriculture</i>	Low(<29.44)	45	22.50	51.18	21.74
		Medium(29.44-72.92)	118	59.00		
		High(>72.92)	37	18.50		
13	<i>Scientific orientation</i>	Low(<4.94)	42	21.00	7.37	2.43
		Medium(4.94-9.8)	142	71.00		
		High(>9.8)	16	08.00		
14	Knowledge about improved bee keeping practices	Low(<17.62)	46	23.00	24.95	7.32
		Medium(17.62-32.28)	128	64.00		
		High(>32.28)	26	13.00		

The data shows that most of the 41.50 per cent of the respondents engaged in farming+agriculture followed bee keeping farming. Majority (53.50%) of the bee keeping farmers had low level of annual income. It is apparent that majority (61.50%) of the bee keeping farmers possessed medium level of material possession. The perusal of data indicates that majority (53.50%) of the respondents had medium level of mass media participation and the majority 59.00 percent of respondents was from medium category of extension contact. The majority 59.00 percent of the bee keeping farmers had medium attitude towards bee keeping farming and majority of bee keeping farmers (71.00%) had medium

level of scientific orientation. Majority 64.00 per cent of the bee keeping farmers had medium knowledge level about bee keeping farming while 23.00 per cent had low knowledge level. Almost similar findings were reported in the past<sup>[1, 4]</sup>.

#### **Entrepreneurial characteristics of bee keeping farmers:**

The entrepreneurial behavior of bee keeping farmers comprised nine components, such as, innovativeness, achievement motivation, decision making ability, risk orientation, coordinating ability, planning ability, information seeking, cosmopolitaness and self-confidence. Data collected in this regard have been furnished in Table-2.

**Table 2 Distribution of bee keeping farmers based on components of entrepreneurial behaviour of bee keeping farmers**

S.N.	Components	Category		
		Low	Medium	High
1	Innovativeness	46(23.00)	132(66.00)	22(11.00)
2	Achievement motivation	32(16.00)	136(68.00)	32(16.00)
3	Decision making ability	25(22.50)	130(65.00)	45(22.50)
4	Risk Orientation	42(21.00)	124(62.00)	34(17.00)
5	Coordinating ability	41(20.50)	123(61.50)	36(18.00)
6	Planning ability	23(11.50)	144(72.00)	33(16.50)
7	Information seeking behavior	30(15.00)	134(67.00)	36(18.00)
8	Cosmopolitaness	28(14.00)	132(66.00)	40(20.00)
9	Self confidence	30(15.00)	124(62.00)	46(23.00)

**Innovativeness:**

It could be observed from the Table 2 that, majority of (61.25%) bee keeping farmers had medium level of innovativeness, whereas 23.75 per cent of bee keeping farmers belonged to high innovativeness and 22.00 per cent of bee keeping farmers belonged to low innovativeness category.

**Achievement motivation-**

It is apparent from the Table 2 that majority (68.00%) of the bee keeping farmers had medium achievement motivation, whereas 16.00 percent the bee keeping farmers belonged to low as well as high achievement motivation category respectively.

**Decision making ability:**

The data show that majority (65.00%) of the bee keeping farmers had medium decision making ability, whereas 22.50 per cent of bee keeping farmers had

both the low and high decision making ability.

**Risk orientation:**

It is evident from Table that majority (62.00%) of the bee keeping farmers had medium risk orientation, whereas, one fourth(21.00%) had low and only 17.00 per cent of bee keeping farmers had high risk orientation.

**Coordinating ability:**

It could be inferred that majority of the (61.50%) bee keeping farmers had medium coordinating ability whereas, 20.00 per cent had low and only 18.00 per cent of bee keeping farmers had low coordinating ability.

**Planning ability:**

It could be seen from Table that majority (72.00%) of bee keeping farmers had medium planning ability followed by high (16.50%) and low (11.50%).

**Information seeking behavior:**

Majority (67.00%) of the bee keeping farmers had medium information seeking behavior whereas, 18.00 per cent had high and only 15.00 per cent of the bee keeping farmers had low information seeking behavior.

**Cosmopolitaness:**

It is evident from Table-2 that majority of (66.00%) bee keeping farmers had medium level of cosmopolitaness. Whereas, 20.00 per cent of bee keeping

**Overall entrepreneurial behavior of bee keeping farmers:**

Entrepreneurial behavior was operationally defined as a process of action an entrepreneur under taken to establish his enterprise. It is a composite skill, the resultant of mix of many qualities and traits. On the basis of

farmers had high and only 14.00 per cent of bee keeping farmers had low level of cosmopolitaness.

**Self-confidence:**

Majority (62.00%) of bee keeping farmers had medium self-confidence whereas, 23.00 per cent of bee keeping farmers had high self confidence and only 15.0014.00 per cent of bee keeping farmers had low level of self confidence.

entrepreneurial score obtained by bee keeping farmers were grouped in three categories i.e. low, medium and, high and their frequency distribution is given in Table 3.

**Table 3 Distribution of the bee keeping farmers according to their entrepreneurial behavior**

S.N.	Category	Frequency	Percentage
1	Low(<60.49)	33	16.50
2	Medium(60.49-91.69)	131	65.50
3	High(>91.69)	36	18.00
<b>Total</b>		<b>200</b>	<b>100.00</b>
Mean		76.09	
SD		15.59	

Among the sample of bee keeping farmers the mean score entrepreneurial behavior was 76.09. The measure of standard deviation was 15.59 indicating lower dispersion among score.

The frequency distribution of respondents on entrepreneurial behavior appeared to fall in normal distribution with nearly 65.5 percent respondents had medium level of entrepreneurial behavior, whereas, 18.00 percent respondents had high level of entrepreneurial behavior and 16.50 per

cent respondents had low level of entrepreneurial behavior.

**Correlation and regression analysis-**

The coefficient of correlation of each of the socio personal characteristics with their entrepreneurial behavior of bee keeping farmers has been furnished in Table-4.

It could be revealed from Table-4 that socio- personal variables viz., education and bee keeping experience, showed positive and significant relationship at 0.01 level of probability, whereas remaining two variables namely

age and caste did not establish any behavior. significant relationship with adoption

**Table 4 Relationship between entrepreneurial behavior of bee keeping farmers with their characteristics-**

S. N.	Variable	Correlation coefficient (r)	t value
A-	<b>Independent variables</b>		
<b>Socio - personal variables</b>			
1	Age	0.131 <sup>NS</sup>	1.859
2	Education	0.333**	4.969
3	Caste	-0.080 <sup>NS</sup>	1.129
4	Experience in bee keeping farming	0.264*	3.851
<b>Socio - economic variables</b>			
5	Livestock possession	0.338*	5.053
6	Land holding	0.322*	4.785
7	occupation	0.343*	5.138
8	Annual income	0.276*	4.040
9	Material possession	0.241*	3.494
<b>Communication variables</b>			
10	Mass media participation	0.017 <sup>NS</sup>	0.239
11	Extension Contact	0.220*	3.173
<b>Psychological variables</b>			
12	Economic motivation	0.227*	3.279
13	Marketing orientation	0.216*	3.112
14	Scientific orientation	0.213*	3.067
15	Attitude of bee keeping farmers towards bee keeping farming	0.278*	4.072
16	knowledge about improved bee keeping practices	0.670**	12.699

\*\*Significant at 1% level.

\*Significant at 5% level.

NS- Non Significant

The coefficient of correlation of each of the socio economic characteristics with their adoption behavior of bee keeping farmers has been furnished.

It could be revealed that among five independent variables, viz., land holding, bee keeping colony possession, occupation, annual income and material

possession showed positive and significant relationship with adoption behavior at 0.01 level of probability.

The correlation coefficient of each of the communicational characteristics of bee keeping farmers with their adoption behavior has been furnished in.

It could be revealed that among two independent variables, viz., extension contact showed positive and significant relationship with adoption behavior at 0.01 level of probability whereas mass media participation had no significant relation with adoption behavior.

The correlation coefficient of each of the psychological characteristics of bee keeping farmers with their adoption behavior has been furnished. It could be revealed from Table-4 that among five independent variables of all variables namely economic motivation, market orientation, scientific orientation, attitude towards bee keeping farming and knowledge of improved bee keeping management practices showed positive and significant relationship with adoption behavior at 0.01 level of probability. The results were in conformity with the findings of past workers<sup>[1, 5]</sup>.

**Table 5 Optimum model of multiple regression analysis between profile of bee keeping farmers and their entrepreneurial behavior**

S.N.	Characteristics	Coefficients	Std Error	t Stat
1	Age	2.751	1.248	2.203*
2	Education	1.038	0.787	1.319
3	Caste	2.239	1.216	1.840
4	Experience in bee keeping farming	0.440	1.228	0.358
5	Livestock possession	1.171	1.111	1.053
6	Land holding	0.2566	0.695	0.368*
7	occupation	3.261	1.2166	2.680
8	Grass Annual income	3.970	1.182	3.356*
9	Material possession	0.191	0.1061	1.805
10	Mass media participation	1.523	0.465	3.269*
11	Extension Contact	1.201	0.3012	3.988*
12	Economic motivation	0.1362	0.159	0.854
13	Marketing orientation	0.354	0.3902	0.907
14	Scientific orientation	0.645	0.367	1.759
15	Attitude of bee keeping farmers towards bee keeping farming	0.103	0.0496	2.080*
16	knowledge about improved bee keeping practices	0.258	0.139	1.850
R <sup>2</sup> =0.98 F value=490.19 with 16 and 184 DFS				

**Multiple regression analysis of predictor variables with their entrepreneurial behavior-**

The Multiple regression analysis was carried out to find out the extent of influence of each variable towards the entrepreneurial behavior of bee keeping

farmers and the data were presented in Table-5. The perusal of data revealed that out of fifteen variables taken for analysis of regression, six variables namely age, occupation, annual income, mass media participation, extension contact and attitude of bee keeping farmers towards bee keeping farming were found to have significant contribution to the entrepreneurial behavior of bee keeping farmers. Table-5 also shows that the coefficient of determination  $R^2$  was 0.98 which indicates that 98.00 percent variation in the entrepreneurial behavior of bee keeping farmers was explained by sixteen independent variables which were selected for study.

**Estimation of the income increased of bee keeping farmers through bee keeping.**

The data in Table 6 indicate that in case of before implementation of bee keeping, most of the beneficiary

respondents (74.00%) belonged to low income group (<Rs. 100,000) followed by 26.00 per cent of them medium income group (Rs. 1,00,000 to 2,00,000) and none of them in high income group (>Rs. 2,00,000) beneficiary respondents. Whereas, after the starting the bee keeping farming, a higher percentage of the beneficiary respondents (58.00%) belonged to high income group (>Rs. 2,00,000), 39.00 per cent beneficiary respondents belonged to medium-income group (Rs. 100,000 to 2,00,000) and only 03.00 per cent of them belonged to low-income group (<Rs. 1,00,000).

It may be concluded that after the inclusion of respondents under bee keeping they had high entrepreneurial behavior and utilized the credit / loan in proper way for economic development and their annual income increased in significant way.

**Table 6 Distribution of the respondents according to their annual income increased due to the bee keeping**

S. No.	Categories	Respondents (n=200)			
		Before		After	
		No.	%	No.	%
1	Low income (<Rs. 100,000)	148	74.00	06	03.00
2	Medium income (Rs. 100,000 to 2,00,000)	52	26.00	78	39.00
3	High income (>Rs. 2,00,000)	00	00.00	116	58.00
<b>Total</b>		<b>200</b>	<b>100.00</b>	<b>200</b>	<b>100.00</b>

**Constraints faced by bee keeping farmers with regards to bee-keeping management:**

It is detected from the data presented in Table-6 that the major economic constraint expressed by bee keeping farmers was high cost of bee boxes (60.00%) followed by difficult loan procedure (51.25%), high cost of medicines (41.25%) and inadequate finance by many others<sup>[2, 3]</sup>.

In case of technical constraint, major constrain expressed by respondents was lack of bee keeping facilities in the village (68.75%), followed by poor conception rate in bee keeping (61.25%), lack of technology knowledge to manage the bee keeping enterprise (58.75%), highly expensive consultancy service to private practitioners (56.25%), whereas, only 28.75% of bee keeping farmers had expressed lack of literature in the village.

The major marketing constraint expressed by bee keeping farmers was difficulty to store honey in summer season (67.5%), followed by competition from established and large units (58.75%), non remunerative price of honey (47.5%) and poor marketing outlet of honey (10%).

The major general constraint expressed by respondents was lack of knowledge about bee feeding (65%), non availability of improved feeding material (53.75%) and only poor irrigation facilities for growing flower crops (2.5%). Similar findings were also reported by many others<sup>[2, 3]</sup>.

**Table 6 Distribution of respondents according to the constraints faced in bee keeping management-**

S.N.	Constraints	Respondents	
		Freq.	%
<b>(I) Economic constraints</b>			
1.	High cost of processing equipments	120	60.00
2.	High cost of medicines	82	41.25
3.	Difficult loan procedure	101	51.25
4.	Inadequate finance by bank for purchasing bee keeping box	130	36.25
<b>(II) Technical constraints</b>			
1.	Lack of veterinary facilities in the village	125	68.75
2.	Highly expensive consultancy service of private practitioners	115	56.25
3.	Lack of availability of literature in the village	60	28.75
4.	Lack of technical knowledge to manage the bee keeping enterprise	110	58.75
5.	Poor conception rate in bee keeping	114	61.25
<b>(III) Marketing constraints</b>			
1.	Non-remunerative price for honey	95	47.50
2.	Poor marketing outlet of honey	20	10.00
3.	Difficulty to store honey in summer season	110	67.50
4.	Competition from established and large units	90	58.75
<b>(IV) General constraints</b>			
1.	Poor irrigation facilities for growing flower crops	24	2.50
2.	Lack of knowledge about bee feeding	130	65.00
3.	Non-availability of feeding material	107	53.75

*Multiple responses possible*

## References

1. Badodiya, S.K., Tiwari, D.K., Gour, C.L. and Martha, P. (2017). Corollary study on Entrepreneurial behavior of dairy farmers. *Technofame-A Journal of Multidisciplinary Advance Research*. 6(2):173-181
2. Chaurasiya, K.K., **Badodiya, S.K.**, Somvanshi, S.P.S. and Gaur C.L. (2016). Entrepreneurial behaviour of dairy farmers in Gwalior district of Madhya Pradesh. *Indian Journal of Dairy Science*. 69: 112-115.
3. Maratha, P. and Badodiya, S.K. (2016). Corollary relationship between entrepreneurial behaviour and other attributes of coriander growers at Ladpura block of Kota district in Rajasthan. *Agriculture Update*, 11( 4) : 344-350
4. Shah, A.K, Nishi, Malik, B.S. and Yadav, V.K. (2010). Entrepreneurial behavior and their correlates among Dairy Entrepreneurs in Northern India. *Indian Journal of Extension Education*. 46(3&4): 53-61.
5. Tekale, V.S., Bhalekar, D.N. and Shaikh, J.I. (2013). Entrepreneurial behavior of dairy farmers. *International Journal of Extension Education*, **9**: 32-36.