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Entrepreneurial behavior of bee keeping farmers

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Abstract

Entrepreneur is the most significant symbol of economic activity and most important mover of development. The present study was conducted in adjoining area Morena city of Madhya Pradesh during 2018-19. A list of farmers who are involved in bee keeping farming was prepared. From this list 200 bee keeping farmers were selected by random sampling method. The study revealed that majority 65.00 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, bee keeping colony possession, occupation, annual income, material possession, extension contact, economic motivation, market orientation, scientific orientation, information seeking behavior of bee keeping farmers towards bee keeping farming and knowledge of improved bee keeping management practices found to have positive and significant relationship with entrepreneurial behavior. Coefficient of determination R^2 was 0.978 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.

Keywords: Entrepreneurial behavior, bee keeping farmers, bee keeping management practices, planning ability, coordinating ability and self-confidence

Introduction

All round development of agriculture is probable only with effective exploitation of entrepreneurial behavior skills as well as material resources. But, our country has scarce of material resources and bestowed with abundant of human resources. So, we can identify individuals in all segments of the population, who have the requisite entrepreneurial behavior skills.

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. In particular, the relatively new industry of 'Natural', health and biological products uses honey abundantly as the sweetener of first choice. The other major role of the honey bees as agents of pollination is rarely appreciated, though available information reveals that annual income through augmentation of crop yields due to bee pollination is at least 20 times or even more than the one from honey and bees wax.

Entrepreneurial behavior is a preference for innovation and a change in existing institutions and the status quo. It can be as simple as the willingness to buy a new electronic gadget or as involved as rebelling against the existing political regime and starting a new nation. It often surfaces in the form of an entrepreneur undertaking the risk of organizing production and launching a new business venture. Keeping the above facts in view, the present study has been designed to analyze the entrepreneurial behavior of dairy farmers. The following specific objectives have been formulated for the study.

1. To study the socio-economic profile of beekeeping farmers.
2. To study the entrepreneurial behaviour of beekeeping farmers.

3. To explore the relationship between socio-economic profile with entrepreneurial behaviour.
4. To find out the constraints faced by beekeeping farmers in adoption of beekeeping enterprise.

Materials and Methods

This study was conducted in Morena district of Madhya Pradesh purposively due to the research centre namely Integrated Beekeeping Development Centre was established at ZARS Morena by National Bee Board New Delhi. A list of villages where maximum numbers of farmers were engaged in bee keeping was prepared with the help of extension official; out of these 5 villages of Kailarash and Joura blocks were purposively selected due more number of farmers were engaged in bee keeping, a total 10 villages were randomly selected for study. A village wise list of bee keeping farmers was prepared and 20 farmers from each village were randomly selected. Thus, the total sample consisted of 200 farmers spread over ten selected villages. The primary data were collected from the respondents 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 & 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.

Results & Discussion

Profile and entrepreneurial behavior of bee keeping farmers

The data in Table-1 shows that maximum number of the respondents (47%) belonged to middle age group and higher percentage (29.00%) of bee keeping farmers educated up to primary level followed by 21.50 percent of the respondents had education at high school level. Majority of the beneficiary respondents (53.50%) belonged to Other Backward Caste (OBC), followed by General Caste category (25.00%), majority 50.50 per cent of the respondents had medium family size and less than half of bee keeping farmers (42.50%) had high level of experience (above 10 years) in bee keeping. The data in Table -1 indicates that less than half of (44.00%) the bee keeping farmers possessed small level of bee keeping colony/material 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. The data shows that most of the 42.50 per cent of the respondents engaged in farming+ agriculture followed bee keeping farming. Majority (51.00%) of the bee keeping farmers had low level of annual income. It is apparent that majority (61.00%) of the bee keeping farmers possessed medium level of material possession. The perusal of data indicates that majority (57.50%) of the respondents had medium level of extension contact and the majority 60.50 percent of respondents was from medium category of economic motivation. The majority 64.00 percent of the bee keeping farmers had medium market orientation towards bee keeping farming and majority of bee keeping farmers (70.00%) had medium level of scientific orientation. Majority 59.00 per cent of the bee keeping farmers had medium information seeking behavior and majority 64.00 per cent of the bee keeping farmer had medium knowledge level about bee keeping farming while 22.50 per cent had low knowledge level. Almost similar findings were reported by Badodiya *et al.* (2017)^[1], Shah *et al.* (2010)^[5] and Pooja *et al.* (2014)^[4].

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, cosmopolitanism and self-confidence. Data collected in this regard have been furnished in Table-2.

Innovativeness

It could be observed from the Table 2 that, majority of (65.00%) bee keeping farmers had medium level of innovativeness, whereas 23.00 per cent of bee keeping farmers belonged to low innovativeness and 12.00 per cent of bee keeping farmers belonged to high 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 15.00 percent the bee keeping farmers belonged to low as well as high achievement motivation category respectively.

Decision making ability

The data show that majority (64.00%) of the bee keeping farmers had medium decision making ability, whereas 24.00 per cent of bee keeping farmers had low and 22.00 percent had high decision making ability.

Risk orientation

It is evident from Table that majority (64.00%) of the bee keeping farmers had medium risk orientation, whereas, one fourth (21.00%) had low and only 15.00 per cent of bee keeping farmers had high risk orientation.

Coordinating ability

It could be inferred that majority of the (62.00%) 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 2 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 (66.00%) of the bee keeping farmers had medium information seeking behavior whereas, 15.00 per cent had high and only 19.00 per cent of the bee keeping farmers had low information seeking behaviour.

Cosmo politeness

It is evident from Table-2 that majority of (64.00%) bee keeping farmers had medium level of cosmopolitanism. Whereas, 19.50 per cent of bee keeping farmers had high and only 16.50 per cent of bee keeping farmers had low level of cosmopolitanism.

Self-confidence

Majority (63.00%) of bee keeping farmers had medium self-confidence whereas, 23.00 per cent of bee keeping farmers had high self-confidence and only 14.00 per cent of bee keeping farmers had low level of self-confidence.

Overall entrepreneurial behavior of bee keeping farmers

Entrepreneurial behaviour 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 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.

Among the sample of bee keeping farmers the mean score entrepreneurial behavior was 76.08. The measure of standard deviation was 15.57 indicating lower dispersion among score. The frequency distribution of respondents on entrepreneurial behavior appeared to fall in normal distribution with nearly 65.00 percent respondents had medium level of entrepreneurial behavior, whereas, 18.00 percent respondents had high level of entrepreneurial behavior and 17.00 per cent respondents had low level of entrepreneurial behavior. Similar findings was also reported by Chaudhari (2006), Badodiya *et al.* (2017)^[1], Verma *et al.* (2018)^[7], Shah *et al.* (2010)^[5] and Pooja *et al.* (2014)^[4].

Correlation and regression analysis

The coefficient of correlation of each of the 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, annual income, material possession, extension contact, Information seeking behavior and knowledge about improved bee keeping practices showed positive and highly significant relationship with entrepreneurial behavior of bee keeping farmers at 0.01 level of probability, followed by Experience in bee keeping farming, Bee keeping colony possession, land holding, occupation, economic motivation, market orientation and scientific orientation showed positive and significant relationship with entrepreneurial behavior of bee keeping farmers at 0.05 level of probability whereas remaining three variables namely age, caste and family typed did not establish any significant relationship with adoption behavior. The result was conformity with the findings of Esakkimuthu (2015)^[3]; Badodiya *et al.* (2017)^[1]; Tekale *et al.* (2013)^[6] and Pooja *et al.* (2014)^[4].

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 0.977 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.

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 keeping farming and its equipments (60.00%) followed by difficult loan procedure and lack of financial support (51.00%), high cost of medicines (46.00%) and inadequate finance by bank for purchasing bee colonies (54.00%). The fifth constraint experienced by the (55.00%) beekeepers is absence of minimum support price for honey and honey based products. Most of the beekeepers only produce honey and were not aware of any of the honey based value added products.

In case of technical constraint, major constrain expressed by respondents was Lack of technical-know how about disease management practice (68.00%), followed by lack of consultancy service of private practitioners (57.50%), Lack of availability of literature in the village to manage the bee keeping enterprise (40.00%), Lack of technical knowledge to manage the bee keeping enterprise (55.00%), whereas, only 30.00% of bee keeping farmers had expressed unsuitable agro-climatic conditions.

The major marketing constraint expressed by bee keeping farmers was difficulty to store honey in summer season (48.00%), followed by non-remunerative price of honey (47.5%), competition from established and large units (30.00%), and poor marketing outlet of honey (35.00%) and 29.00 per cent respondents expressed lack of organized marketing network for the honey and honey product.

The major general constraint expressed by respondents was poor irrigation facilities for growing flower crops (62.00%), Lack of knowledge about artificial feeding of bee (55.00%), non-availability of improved feeding material and lack of safety of bee boxes (52.00%) because Beekeepers practicing migratory beekeeping expressed lack of safety to honeybee boxes as another constraint. Honeybee colonies have to be transferred from one place to another depending on the availability of nectar and pollen. Sometimes, the colonies are transferred to areas where rubber is grown. During this time, theft of honey bee boxes is common. Sometimes, when food is scarce, the bees may also leave the beehive boxes in search of food if artificial feeding is delayed. Absence of policy frame work (45.00%) and only 40.00 per cent respondents expressed their view on lack of skill up-gradation.

Table 1: Profile of the bee keeping farmers

| SN | Traits | Category | Frequency | Percentage | Mean | SD |
|----|--|--|-----------|------------|-------|------|
| 1 | Age | Young (below 35 yrs) | 50 | 25.00 | 2.03 | 0.72 |
| | | Middle(35-55 yrs) | 94 | 47.00 | | |
| | | Old(above 55 yrs) | 56 | 28.70 | | |
| 2 | Education | Illiterate | 39 | 19.50 | 1.73 | 1.27 |
| | | Up to primary | 58 | 29.00 | | |
| | | Up to middle | 40 | 20.00 | | |
| | | High school | 43 | 21.50 | | |
| | | Higher sec. &above | 20 | 10.00 | | |
| 3 | Caste | General | 51 | 25.50 | 1.96 | 0.68 |
| | | OBC | 107 | 53.00 | | |
| | | SC/ST | 42 | 21.50 | | |
| 4 | Farming experience | Low(below 5 yrs) | 49 | 24.50 | 2.19 | 0.80 |
| | | Medium(5-10 yrs) | 66 | 33.00 | | |
| | | High(above 10 yrs) | 85 | 42.50 | | |
| 5 | Bee keeping colony possession | Low (<0.99) | 88 | 44.00 | 1.85 | 0.84 |
| | | Medium (0.99-2.69) | 53 | 26.50 | | |
| | | High(>2.69) | 59 | 29.50 | | |
| 6 | Land holding | Marginal (up to 1 ha.) | 85 | 42.50 | 2.02 | 1.37 |
| | | 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 | Occupation | Bee keeping Farming | 71 | 35.50 | 1.86 | 0.74 |
| | | Bee keeping Farming + Agriculture | 85 | 42.50 | | |
| | | Bee keeping Farming + Agriculture+ Other | 44 | 22.00 | | |
| 8 | Annual income | Low(<0.87) | 102 | 51.00 | 1.72 | 0.82 |
| | | Medium(0.87-2.53) | 50 | 25.00 | | |
| | | High(>2.53) | 48 | 24.00 | | |
| 9 | Material Possession | Low(<15.52) | 50 | 25.00 | 24.90 | 9.28 |
| | | Medium(15.52-34.14) | 122 | 61.00 | | |
| | | High(>34.14) | 28 | 14.00 | | |
| 10 | Mass media participation | 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 | Extension contact | Low(<7.65) | 50 | 23.00 | 10.94 | 3.41 |
| | | Medium(7.65-14.0) | 115 | 59.00 | | |
| | | High(>14.0) | 35 | 17.50 | | |
| 12 | Economic motivation | Low(<29.44) | 51 | 25.50 | 19.73 | 6.44 |
| | | Medium(29.44-72.92) | 121 | 60.50 | | |
| | | High(>72.92) | 28 | 14.00 | | |
| 13 | Scientific orientation | Low(<4.94) | 44 | 22.00 | 7.37 | 2.43 |
| | | Medium(4.94-9.8) | 140 | 70.00 | | |
| | | High(>9.8) | 16 | 08.00 | | |
| 14 | Knowledge about improved bee keeping practices | Low(<17.62) | 45 | 22.50 | 12.60 | 5.25 |
| | | Medium(17.62-32.28) | 118 | 59.00 | | |
| | | High(>32.28) | 37 | 18.50 | | |

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 | 31(15.50) | 138(69.00) | 31(15.50) |
| 3 | Decision making ability | 26(23.00) | 130(65.00) | 44(22.00) |
| 4 | Risk Orientation | 40(20.00) | 126(63.00) | 34(17.00) |
| 5 | Co-ordinating ability | 40(20.00) | 124(62.00) | 36(18.00) |
| 6 | Planning ability | 23(11.50) | 144(72.00) | 33(16.50) |
| 7 | Information seeking behaviour | 30(15.00) | 132(66.00) | 38(19.00) |
| 8 | Cosmopolitanisms | 30(15.00) | 130(65.00) | 40(20.00) |
| 9 | Self confidence | 30(15.00) | 126(63.00) | 44(22.00) |

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 |
| | Total | 200 | 100.00 |
| | Mean | | 76.09 |
| | SD | | 15.59 |

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

| S. No | Variable | Correlation coefficient (r) |
|---------------------------------|--|-----------------------------|
| A- Independent variables | | |
| 1 | Age | 0.131 ^{NS} |
| 2 | Education | 0.333** |
| 3 | Caste | -0.080 ^{NS} |
| 4 | Family Size | 0.040 |
| 5 | Experience in bee keeping farming | 0.276* |
| 6 | Bee keeping colony possession | 0.261* |
| 7 | Land holding | 0.296* |
| 8 | occupation | 0.300* |
| 9 | Annual income | 0.337** |
| 10 | Material possession | 0.324** |
| 11 | Extension Contact | 0.442** |
| 12 | Economic motivation | 0.281* |
| 13 | Marketing orientation | 0.234* |
| 14 | Scientific orientation | 0.235* |
| 15 | Information seeking behaviour | 0.330** |
| 16 | knowledge about improved bee keeping practices | 0.364** |

**Significant at 1% level. *Significant at 5% level. NS- Non Significant

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 | 1.216 | 2.680 |
| 8 | Grass Annual income | 3.970 | 1.182 | 3.356* |
| 9 | Material possession | 0.191 | 0.106 | 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 | 0.390 | 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 ² =0.977 F value=490.19 with 16 and 184 DFS | | | | |

Table 7: Distribution of respondents according to the constraints faced in bee keeping management

| S.N. | Constraints | Respondents | |
|------------------------------------|---|-------------|-------|
| | | Freq. | % |
| (I) Economic constraints | | | |
| 1. | High cost of bee keeping farming and its equipments | 120 | 60.00 |
| 2. | High cost of medicines | 92 | 46.00 |
| 3. | Difficult loan procedure and lack of financial support | 102 | 51.00 |
| 4. | Inadequate finance by bank for purchasing bee keeping box | 108 | 54.00 |
| 5. | No minimum price for honey and honey based products | 110 | 55.00 |
| (II) Technical constraints | | | |
| 1. | Lack of technical-know how about disease management practice | 136 | 68.00 |
| 2. | Lack of consultancy service of private practitioners | 115 | 57.50 |
| 3. | Lack of availability of literature in the village | 80 | 40.00 |
| 4. | Lack of technical knowledge to manage the bee keeping enterprise | 110 | 55.00 |
| 5. | Unsuitable agro-climatic conditions | 114 | 57.00 |
| (III) Marketing constraints | | | |
| 1. | Non-remunerative price for honey | 95 | 47.50 |
| 2. | Poor marketing outlet of honey | 70 | 35.00 |
| 3. | Difficulty to store honey in summer season | 98 | 48.00 |
| 4. | Competition from established and large units | 60 | 30.00 |
| 5. | Lack of organized marketing network for the honey and honey product | 58 | 29.00 |
| (IV) General constraints | | | |
| 1. | Poor irrigation facilities for growing flower crops | 124 | 62.00 |
| 2. | Lack of knowledge about artificial feeding of bee | 110 | 55.00 |
| 3. | Non-availability of feeding material | 104 | 52.00 |
| 4. | Absence of policy frame work | 90 | 45.00 |
| 5. | Lack of skill up-gradation | 80 | 40.00 |

Multiple responses possible

Conclusions

The study revealed that majority 65.00 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, bee keeping colony possession, occupation, annual income, material possession, extension contact, economic motivation, market orientation, scientific orientation, information seeking behavior of bee keeping farmers towards bee keeping farming and knowledge of improved bee keeping management practices found to have positive and significant relationship with entrepreneurial behavior. Coefficient of determination R^2 was 0.978 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 bee keeping farmers (58.00%) increased their income in high group (> Rs.1, 00, 000).

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