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Constraints and Strategies for Sustainable Apiculture Perception of Beekeepers in Bihar

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ABSTRACT

Based on systematic study, the efforts have been made to identify the major constraints in adoption of standardized bee-keeping technologies for enhancing honey production .Also some strategies were suggested for participative approach of sustainable apiculture based on the experiences of bee-keepers of this region. The study revealed that the prime constraints perceived by beekeepers were related to technological and economic aspects. The important strategies suggested by beekeepers included the aspects of trainings, migration beekeeping practices.

Key Wards : Bee-keeping, adoption, constraints, strategies

INTRODUCTION

Agriculture with its allied sectors is the predominant component of the Indian economy. Since,there is no scope for further horizontal expansion of land for cultivation,the only alternative left is for vertical expansion and that too through diversified farming. Beekeeping plays a vital role in increasing economic and social status of the farmers. Beekeeping is an agro-based enterprise which but does not compete with other resources of farming system. Prior to the introduction of *Apis mellifera*, production of honey was 8 tonnes per year and there were 130 beekeepers having 10,000 honey pee colonies. With the successful introduction and adoption of Italian honeybee *Apis mellifera* in northern India after 1965, there has been a remarkable increase in honey production which reached to 4225 tonnes during 1997.Presently there are about 1,50,000 *Apis mellifera.*

In the Bihar state an average yield of 30 kg. per colony per year extracted under stationary bee keeping and around 60 kg. honey per colony per year under migratory process which is much higher than the national average of 20 kg.Still there exist a great potential in the country in general and in Bihar in particular to enhance honey production through interventions of adoption of scientific management of beekeeping practices and capacity building of beekeepers the behavioural components.

The beekeepers are confronted with many constraints impediments which retard the growth of apiculture industry severely. Therefore, it becomes imperative to explore the major constraints encountered by them and evolve the strategies in order to provide the sustainability in this endeavour.

METHODOLOGY

The present investigation was carried out at Honeybee Centre, RAU, Pusa (Bihar). The respondents were the trainees at the centre during year 2005.A total of 216 trainees participated in the study as the sample. It a post facto study in which instrument was constructed in the form of schedule with the help of extension experts and honeybee scientists. Respondents were asked to give three constraints on priority basis which they felt the most important and also suggest strategies to overcome those constraints.

The constraints and strategies were ranked on the basis of percentage score under the specific aspects.

RESULT AND DISCUSSION

The constraints perceived by beekeepers in beekeeping practices are presented here through different tables under several headings *viz*. socio-personal, economic, technological and communicational.

Table 1 :Socio-personal constraints perceived in beekeeping

Constraints	f	%	Frequency responses in different ranks			Total score	Rank-ing
			I	II	III		
Lack of knowledge among rural communities about importance and nutritional value of honey and other beehive products	16	7.4	13	2	1	44	III
Fear of failure of business	7	3.2	0	3	4	10	VII
Lack of extension services related to beekeeping	5	2.3	0	2	3	7	VIII
Lack of family co-operation	10	4.6	0	1	9	11	IV
Dominance of male counterpart in decision-making	9	4.1	0	1	8	10	V
Illiteracy among the people	23	10.6	0	10	13	33	II
Lack of social organization	8	3.7	0	0	8	8	VI
Fear of robbing of colonies during dearth period	30	13.8	8	7	15	53	I

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The Table 1 revealed that the most important socio-personal constraint in beekeeping is fear of robbing of colonies during dearth period (13.8%) followed by Illiteracy among the people (10.6%). The other constraints perceived by beekeepers in descending order of importance were lack of knowledge about importance and nutritional value of honey and other beehive products (7.4%), lack of family co-operation (4.6%) , dominance of male counterpart in decision-making (4.1 %), lack of social organization (3.7%), fear of failure of business (3.2%) .The least important constraint was lack of extension services related to beekeeping (2.3%).

Table 2: Economic constraints as perceived in beekeeping.

Constraints	f	%	Frequency responses in different ranks			Total score	Rank-ing
			I	II	III		
High cost of improved inputs	27	12.5	7	11	9	52	II
Complex and long procedure of loan sanction	24	11.1	1	1	22	27	III
Lack of knowledge about credit facilities	6	2.7	0	0	6	6	VII
Delayed payment from sale of produce	18	8.3	7	3	8	35	IV
Lack of government initiative in funding loans and granting of subsidies	10	4.6	0	7	3	17	VI
High initial investment	11	5.0	0	3	8	14	V
High investment on feeding during dearth period	37	17.1	15	21	1	88	I

A perusal of Table 2 indicated the economic constraints as perceived by beekeepers. It was found that the high investment on feeding during dearth period ranked first constraint (17.1%) followed by the constraint of high cost of improved inputs (12.5%). The rank order revealed that the constraint pertaining to lack of knowledge about credit (2.7%) facilities was considered least important economic constraint in beekeeping. The other identified constraints in order of importance were complex and long procedure of loan sanction (11.1%), delayed payment from sale of produce (8.3%), high initial investment (5.0%) and lack of government initiative in presiding loans and granting of subsidies (4.6%).

Table 3: Marketing constraints as perceived in beekeeping

Constraints	f	%	Frequency responses in different ranks			Total score	Rank-ing
			I	II	III		
Lack of regular and organized marketing facilities	48	22.2	26	12	10	112	I
Malpractices of middlemen	5	2.3	0	0	5	5	V
Poor are not consumers because it is costly	9	4.1	0	0	9	9	IV
Availability of market at long distance from beekeeping areas	17	7.8	3	14	0	37	II
Low quality of honey due to poor storage	12	5.5	0	10	2	22	III

The Table 3 revealed that the marketing constrains in rank order were lack of regular and organized marketing facilities (22.2%) followed by availability of market at long distance (7.8%), low quality of honey due to poor storage (5.5%), poor are not consumers because it is costly (4.1%) and malpractices of middlemen (2.3%).

Table 4: Technological constraints as perceived in beekeeping

Constraints	f	%	Frequency responses in different ranks			Total score	Rank-ing
			I	II	III		
Lack of scientific beekeeping training facilities	114	55.5	69	48	2	305	I
Poor knowledge regarding scientific beekeeping practices	59	27.3	41	15	3	156	I
Lack of proper seasonal management of honeybees	17	7.8	9	1	7	36	V
Difficulty in proper processing and storage facilities	18	8.3	10	2	6	40	IV
Lack of technical guidance in post harvest technologies	13	6.0	0	9	4	22	VI
Lack of knowledge of availability of flora and their flowering seasons in different regions	19	8.7	4	2	13	29	III

The Table 4 depicts that the major technological constraints were : lack of scientific beekeeping training facilities (55.5%), followed by poor knowledge regarding scientific beekeeping practices (27.3%). The least important technological constraint was observed as lack of technical guidance in post harvest technologies (6.0%). The other important constraints perceived by respondents were : lack of knowledge of availability of flora and their flowering seasons in different regions (8.7%), difficulty in proper processing and storage facilities (8.2%) and proper seasonal management (7.8%).

Strategies for enhancing honey production as suggested by bee keeping

The identified constraints create the problems for beekeepers in many ways and retard the growth of bee keeping development. Hence, it becomes imperative to explore the suggested strategies in order to overcome constraints these suggested strategies have been depicted in Table 5.

Table 5: Socio-personal strategies in beekeeping

Strategies	f	%	Ranking
Educational facilities should be improved	76	35.1	I
More active participation needed by the women	17	7.8	IV
Anti-robbing device should be given priority during the dearth period	21	9.7	III
Access to social organization	7	3.2	V
Establishing a good rapport between beekeepers and beekeeping specialists and extension agencies	58	26.8	II

The Table 5 explained that educational facilities should be improved (35.1%) first followed by establishing a good rapport between beekeepers and beekeeping specialists and extension agencies (26.8%), anti-robbing device should be given priority during the dearth period (9.7%) and more active participation was needed by the women (7.8%) and the accessibility of social organization (3.2%).

Table 6: Economic strategies in beekeeping

Strategies	f	%	Ranking
Timely payment of sale of produce	102	47.2	II
Government should take initiatives in providing loans and granting subsidies	92	42.5	III
Banks should provide loans at easy and low rate of interest	71	32.8	IV
Migratory beekeeping should be practiced to get rid of feeding cost during dearth period	133	61.5	I

The Table 6 elicits the facts that out of all the four economic strategies suggested by the beekeepers the most important was migratory beekeeping should be practiced to get rid of high feeding cost during dearth period (61.5%). The economic strategies suggested by beekeepers in priority order were migratory beekeeping should be practiced (61.5%) followed by timely payment of sale of produce (47.2%), Government should take initiatives in providing loans and granting subsidies (42.5%), and bank should provide loans at easy and low rate of interest (32.8%).

Table 7: Marketing strategies in beekeeping

Strategies	f	%	Ranking
Access to regular and organized marketing facilities	138	63.8	I
Action should be taken to stop malpractices by middlemen	5	2.3	III
Low cost should be maintained so that the produce may easily reach to the poor consumers also	48	22.2	II

Table 7 indicated that most important marketing in strategy suggested by the beekeepers was access to regular and organized marketing facilities (63.8%) followed by low cost should be maintained so that the produce may reach to the poor consumers also (22.2%) and action should be taken to stop malpractices by the middlemen (2.3%).

Table 8: Technological strategies in beekeeping

Strategies	f	%	Ranking
Provision of regular scientific beekeeping training by the G.Os, N.G.Os and other private agencies	144	66.6	I
Cost effective and simple technologies should be within the reach of beekeepers	58	26.8	IV
Diversification in beekeeping to make it more profitable	119	55.0	II
Access to knowledge regarding floral calendars viz., abundance, time and duration of blooming	54	25.0	V
Establishment of bee colony multiplication unit at beekeeping areas in order to get colonies and improved equipments by the beekeepers at reasonable price	81	37.5	III

It is observed from Table 8 that amongst various technological strategies suggested by the respondents, provision of scientific beekeeping training by G.Os and N.G.Os and other private agencies was ranked first, (66.6%) followed by diversification in beekeeping to make it more profitable was ranked second (55.0%). The establishment of bee colony multiplication unit at beekeeping areas (37.5%) and cost effective and simple technologies should be within the reach of beekeepers (26.8%) were received the ranking of third and fourth respectively. The access to knowledge regarding floral calendars *viz.*, abundance, time and duration of blooming was considered the least of technological strategies (25.0%).

CONCLUSION

The analysis of the perceived constraints of different types and strategies suggested by beekeepers revealed that the technological constraints and economic constraints were the prime obstacles followed by the socio-personal constraints. The major strategies suggested by beekeepers are the provision of regular scientific beekeeping training by GOs ,NGOs and other private agencies, migratory beekeeping should be practiced to overcome high feeding cost during dearth period and diversification in beekeeping is needed to make it more profitable. The information generated through the study is of immense utility for the scientists and extension agencies in formulating a suitable action plan as per the needs of the beekeepers so that the desired level of honey production can be obtained for improving the livelihood for farming community of this region.

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