

Original Research Article

Knowledge of the Beekeepers with Regards to Scientific Beekeeping

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ABSTRACT

The State of Bihar is endowed with highly diversified and about bees-flora and favourable ecological conditions. Bihar is one of the largest producers, consumers and exporters of Litchi honey. Ninety percent of Litchi orchards of the country are located in Bihar State alone. The Districts, Blocks and Villages were purposively selected stands first, second and third in Litchi area and maximum concentration of beekeepers area in Bihar. The multistage sampling plan was adopted in this study. The study was conducted in Muzaffarpur, Vaishali and Samastipur districts of Bihar. The sample comprised of 200 beekeepers. Knowledge is one of the important components of behaviour and as such it plays an important role in covert and overt behaviour of an individual. Knowledge is generally understood as an intimate acquaintance of an individual with facts. It is a result or product of knowing information or understanding. It can be acquired through experience to develop practical ability of skill. The knowledge of beekeepers in respect of different components of scientific beekeeping practices was measured by asking them a number of standardized questions in each area. Correct knowledge in aspects like seasonal management, correct dose of artificial food, proportion of sugar and water in summer season, importance and use of improved equipments, processing of honey, effect of migration, diseases and their control, honey de-moist ring, etc. The respondents in majority (75.0%) possessed medium level of knowledge. Only a small percentage (12.0%) was having high level of knowledge. Knowledge is one of the most important prerequisite factors for adoption of a technology. That is why knowledge has been found to have a positive association with agricultural technologies in most of the studies. But, medium level of knowledge of most of the beekeepers as indicated by the above data is a matter of concern as it will keep on affecting adoption of the bee keeping technology adversely.

Keywords

Beekeeping,
Consumers, Litchi,
Equipments,
Income

Introduction

Use of modern input and adoption of technology in agriculture are undoubtedly more important in increasing farm productivity. This is true particularly in developing countries like India. Whereas, prosperity of country is mainly dependent on agriculture. In India considerable changes

have been brought about in traditional agriculture during recent years through various enterprises involving use of modern inputs and new technology. However, the progress that has been achieved so far, differ from one region to another. There is certain region where the progress in Agriculture is

more than the expectations. Beekeeping therefore naturally emerges as one of the important agri-based rural industry having potential to generate large scale employment. Beekeeping is an ecologically sound, economically viable and socially acceptable enterprise. It is an ideal activity for the socio-economic development of rural people. By assuring a viable occupation and a stable source of income to rural people, it holds great promise to raise their standard of living, promote their economic independence and boost their socio-economic status (Goyal, 1993). It helps to reduce unemployment or underemployment if adopted on a commercial scale or as a cottage industry. It can generate self-employment to over 15 million rural and tribal families and can produce an annual income of over Rs. 4.5 billion by producing 150,000 tons of honey (Shende, 1992).

Bihar is one of the leading honey producing states in India. The main regions in which beekeeping is done in the State are the districts of Muzaffarpur, Vaishali, Samastipur, Sitamarhi, Champaran, Madhepura, Katihar and Begusarai. Approximately 5.954 MT of honey was produced in the state in 2007-08 in 491 villages by 1,91,291 beekeepers. Bihar is the only state producing litchi honey on a commercial scale, which should rank at par with some of the premium honey in the world market such as the Black Forest Honey of Germany and the Spanish Orange Honey in terms of its uniqueness and quality.

Honey yield with the Italian honeybee species is the highest in Bihar as compared to other states with a production rate of 40 and 60kg honey / hive / year under stationary and migratory beekeeping respectively. Beekeeping is low investment and high profit giving enterprise. Income in

this profession comes from several bee products and services. Gatoria *et al.*, (1998) and Mishra (1998) estimated the net profit from 100 bee colonies between Rs 81,600 to Rs. 88,037. It is a multipronged employment generating enterprise providing gainful employment opportunity to both rural and urban people. Knowledge, as a body of understood information possessed by an individual, is one of the most important components of human behaviour.

Materials and Methods

The multistage sampling plan adopted in the study. The field investigation was carried out in Muzaffarpur, Vaishali and Samastipur districts of Bihar State which had maximum concentration of the beekeepers. One Block of each of these Districts having maximum number of beekeepers was selected purposively. On the same basis, six villages having maximum number of beekeepers were selected from each of the three Blocks. The sample size to be drawn from a Block was decided to be in proportion to the number of beekeepers in each of the three Blocks. The respondents were selected from the list of beekeepers for the six villages of a Block with the help of random number table, proportionate to the size of beekeepers in each village.

Thus, a total of 125 beekeepers from Muzaffarpur district, 50 from Vaishali district and 25 from Samastipur district, totaling 200 were selected to serve as respondents under this study. Data were collected from individual beekeeper through personal interviews with the help of specially constructed interview schedule. Knowledge about beekeeping was operationalised as quantum of specific information possessed by the beekeepers about the beekeeping technology. This was measured as degree of recall or recognition

by the respondents. The knowledge of recommended beekeeping practices was measured by using the standardized knowledge test developed by Singh (2000) after making certain modifications.

The Test consisted of 60 items, out of which 11 items were about importance of beekeeping, nine items about bee and colony organization, seven items related to beekeeping equipments, 21 items about management practices, six items about pest and disease of honey bees, six items about processing and storage of honey.

The knowledge test thus constructed formed the part of the schedule and was administered upon the respondents at the time of their interview. As regards to methods of scoring adopted for Knowledge scale, each respondent was given a score of one for each correct answer and 0 for incorrect answer to an item.

All such scores were summed up for each individual respondent and the knowledge index was calculated with the help of the formulae adopted by Anath, (2001) for calculation of the Knowledge Index (KI) in respect of each beekeeper.

$$K I = K/P \times 100$$

Where,

KI= Knowledge Index,

K= knowledge score obtained by the respondents, and

P= Possible maximum score.

The knowledge level of the individual beekeeper was interpreted in terms of low, medium and high using Cumulative Cube Root Frequency method.

Results and Discussion

The respondents were awarded appropriate scores with respect to each Knowledge statement. These scores were added up to obtain the respondents' knowledge with respect to every component which is compiled in Table 1. It is clear from Table 1 that the knowledge level of most of the respondents was medium in respect of various components of the bee keeping technology. The knowledge of more than 90.0 percent of the respondents about 'preventive measures' and 'honey production technology' were at medium level. Only 'bee establishment' and 'bee equipments' were the two components in which relatively good number of respondents namely 35.50 percent and 25.0percent beekeepers, respectively were found to possess high knowledge, With regard to rest of the components, more than 60.0 percent respondents had medium level of knowledge. Just 0.50 percent of the respondents i.e., just one beekeeper out of 200 was found to have high level of knowledge in preventive measures.

Bee management and honey production technology were also other two components in which only 2.0 percent beekeepers were found to have high knowledge. Fortunately, the percentage of respondents having low knowledge which generally is the greatest limitation in the adoption of a technology was not high. It was sizable in respect of bee management and processing and storage only with 25.0 percent and 20.0 percent respondents, respectively having low knowledge.

The knowledge scores of various components of bee keeping technology were summed up and categorized into three different groups, i.e., low, medium and high knowledge levels.

Table.1 Knowledge of Beekeepers about beekeeping technology. (N=200)

Sl. No.	Components	Score range	Category	F	%
1.	Importance	Up to 31	Low	38	19.00
		32 to 44	Medium	135	62.50
		Above 44	High	27	13.50
2.	Bee establishment	Up to 31	Low	3	1.50
		32 to 44	Medium	126	63.00
		Above 44	High	71	35.50
3.	Bee Equipments	Up to 31	Low	14	07.00
		32 to 44	Medium	135	67.50
		Above 44	High	51	25.50
4.	Bee management	Up to 31	Low	50	25.00
		32 to 44	Medium	146	73.00
		Above 44	High	4	2.00
5.	Production technology	Up to 31	Low	16	8.00
		32 to 44	Medium	180	90.00
		Above 44	High	4	2.00
6.	Processing& storage	Up to 31	Low	41	20.50
		32 to 44	Medium	136	68.00
		Above 44	High	23	11.50
7.	Preventive measures	Up to 31	Low	12	6.00
		32 to 44	Medium	187	93.50
		Above 44	High	1	0.50

Table.2 Distribution of respondents according to overall level of knowledge of beekeeping technology. (N=200)

Sl. No.	Category	Score range	Frequency	Percentage
1.	Low	Up to 31	26	13.00
2.	Medium	32 to 44	150	75.00
3.	High	Above 44	24	12.00

The respondent's distribution in these categories is presented in Table 2. It is revealed from Table 2 that majority of the respondents (75.0 %) possessed medium level of knowledge. Only 12.0 percent of the respondents were found to possess a high level of knowledge. However, there was almost equal size of those (13%) that possessed low level of knowledge.

Knowledge is one of the most important prerequisite factors for adoption of a technology. That is why knowledge has

been found to have a positive association with agricultural technologies in most of the studies. But, medium level of knowledge of most of the beekeepers as indicated by the above data is a matter of concern as it will keep on affecting adoption of the bee keeping technology adversely. This finding is in conformity with the findings of Singh (2000), Patel (2006) and Chahal (1993).

Knowledge contributed significantly to desired improvements in beekeeping. Therefore adequate training, technical

advice of the scientific beekeeping requires to be strengthened accordingly. It is at present available in the agricultural university only. The skill oriented training network need to be widened and made more easily available. The components of level of knowledge, of scientific beekeeping viz. importance of beekeeping technology, bee colony establishment, beekeeping equipment, management practices, production technology, processing and storage of honey and preventive measures of beekeeping technology were significant. Potential of mass of media like television, radio, newspaper, magazine, extension literatures should be fully utilized for increasing awareness, knowledge on the subject of advance beekeeping technology.

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