



Innovations in Adoption of Indigenous Knowledge of Livestock Management

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Abstract - The present study was conducted in Beed district of Maharashtra with the objective to assess the extension of innovations in adoption of indigenous technologies by livestock farmers and its association with the selected characteristics. The data were collected with the help of well constructed and pre tested interview schedule from randomly selected 200 livestock farmers of randomly selected 20 villages.

It was also found that more than half of the livestock farmers had medium level adoption of indigenous technologies. Out of 235 indigenous technologies identified, 20 indigenous technologies were selected to study the adoption status. The data indicated that among 20 indigenous technologies, 55 per cent (11 indigenous technologies) were completely adopted and 2 indigenous technologies (10 %) were not adopted.

Age, family size, family experience, land holding, number of farm animals, distance from veterinary clinic, sources of information, attitude towards indigenous technology, risk orientation and fatalism were positively and significantly related with adoption of indigenous technology whereas education, scientific orientation showed negative and significant association.

Key words- Indigenous knowledge, Adoption, Livestock management, ITK.

I. INTRODUCTION

India has been the land of people with intellectual knowledge and spiritual wisdom. During both pre-vedic and post-vedic period, science and technology flourished in India. Their fathers and ancestors passed on this knowledge and wisdom to the next generation by word of mouth. This knowledge is termed as 'Traditional Knowledge' or 'Indigenous Knowledge'. People's traditional knowledge pertaining to animal health care and production is known as Veterinary Indigenous Knowledge or Ethno-Veterinary Practice or Ethno-Veterinary Medicine (EVM) (Mc Corkle 1992).

In the last century, science and technology has advanced at such a great pace and magnitude that it has changed profoundly the face of the world. Improved technologies are not suitable for smallholdings as these are costlier and require knowledge that is more technical. Hence, there is a need to search alternative technologies, such as low external input agriculture, sustainable agriculture, organic farming, biodynamic farming etc. For developing countries like India, the suitable alternative is traditional method or indigenous method.

The importance of indigenous technologies is exemplified by the fact that more than 80 per cent of the livelihood needs of world's poor is based directly or indirectly on the use of biological resources and associated traditional knowledge. It has become a part of cultural identities of indigenous and local communities and has become an inseparable part of communities.

This indigenous knowledge, related to animal husbandry and livestock, is still sustained and used by rural people. These people live in dire state but they are also the real innovators. They use the natural resources in optimum proportion to get results, which are useful in maintaining the ecological balance. Creativity, compassion and collaboration are the key characteristics of these people.

It is therefore necessary to study the present status of adoption of indigenous technologies and factors affecting it. Keeping this in view the present study was carried out with following specific objectives.

*To appraise the extent of adoption of indigenous technology by livestock farmers.

* To study the relationship of selected characteristics of the livestock farmers with their adoption of indigenous technology.

II. METHODOLOGY

The study was conducted in randomly selected Parli Vaijnath and Ambajogai taluka in Beed District of Maharashtra. There are 213 villages in Parli Vaijnath and Ambajogai taluka and 20 villages (10 each from Ambajogai and Parli Vaijnath taluka) were randomly selected for the present investigation. From list of livestock farmers having minimum two milking animals 10 farmers (irrespective of age) were selected randomly from each selected 20 villages to make a sample of 200 respondents. These selected respondents were personally interviewed with the help of specially designed and pretested interview schedule. Data so collected was statistically analyzed with the help of frequency, percentage and correlation coefficient of correlation.

Rogers (1983) stated, "Adoption is a decision to make full use of a new idea as the best course of action available." The livestock farmer operationalized adoption of indigenous technology as the degree of actual use of indigenous technology.

Out of 235 common indigenous technologies identified, 20 indigenous technologies, which have more score of response by veteran farmer, were selected to study the adoption status. For appraising the level of adoption, three-point scale was used i.e. always adopted, sometimes adopted and not adopted practices. Score two was assigned for always, score one was assigned for sometimes and score zero was assigned for no adoption of practices.

Based on three-point continuum, the scores obtained by individual respondent were summed-up and this sum of total indicated the raw indigenous technology adoption score for that individual. This raw score then was converted into indigenous technology adoption index as below. The maximum obtainable score one could get was 40 where as the minimum score one could register was zero.

$$\text{Indigenous technology adoption index} = \frac{\text{Sum of indigenous technology adoption score obtained by individual respondent}}{\text{Obtainable indigenous technology adoption score}} \times 100$$

Based on adoption index the respondents were categorized into three categories i.e. non-adoption (score upto33). Some times adoption (score 34-66) and always adoption (score 67and above). The relationship between the socioeconomic chatacteristics (independent variable) and degree of adoption (dependent variable) was ascertained through simple correlation coefficient.

III. RESULTS AND DISCUSSION

Overall adoption level of indigenous technologies

Table I Distribution of farmers according to their overall adoption level

Sr. No.	Category	Frequency	Per cent
1	Low(up to 33)	50	25
2	Medium(34 to 66)	111	55.5
3	High(67 and above)	39	19.5
	Total	200	100

SOURCE: FIELD SURVEY

A peep into the table 1 reveals that 55.5 per cent of the respondents had medium adoption level followed by low (25 per cent) and high (19.5 per cent) categories of adopters. This tends to depict that livestock farmers adopt indigenous technology to medium to high level (75.00 per cent). This also shows the attachment of livestock farmers towards indigenous technologies. Kokate and Tyagi (1991), Masram (1999), Ganesamoorthi (2000), Kalaskar (2002) and Sundaramari (2002) reported similar findings.

Practice wise adoption of indigenous technology

The distribution of the respondents according to their adoption of different indigenous technologies is given in table 2.

Table II Distribution of respondents according to adoption of different indigenous technology (N = 200)

Sr. No.	Indigenous practices	Extent of adoption					
		Always		Some time		Not adopted	
		Freque ncy	Per cent	Freque ncy	Per cent	Freque ncy	Per cent
1	Use of sickle type hand chaff cutter for chaffing the fodder.	180	90	-	-	20	10
2	Preparation of cattle shade by using grasses, sugar cane leaves pulses/cotton stock etc.	90	45	40	20	70	35
3	Feeding dried sugarcane leaves or paddy straw for retention of placenta	120	60	30	15	50	25
4	Use of butter and turmeric powder for neck sore treatment.	102	51	54	27	44	22
5	Feeding (Jiggery) Gur for getting strength	70	35	75	37.5	55	27.5
6	Using writing ink to treat burning	100	50	10	5	90	45
7	Use of chilly powder for treatment of dog bite.	68	34	42	21	90	45

Sr. No.	Indigenous practices	Extent of adoption					
		Always		Some time		Not adopted	
		Frequency	Per cent	Frequency	Per cent	Frequency	Per cent
8	Use of Jakham Jodi (<i>Tridax procumbens</i>). leaves paste for wound.	88	44	53	26.5	59	29.5
9	Use camphor to treat wound with maggot	125	62.5	40	20	35	17.5
10	Feeding coriander (<i>Coriandrum sativum</i>) paste to cure FMD.	50	25	52	26	98	49
11	Keeping the branch of apumary (<i>Gymnema sylvestre</i>) in shade to inhibit appearance of snake	125	62.5	45	22.5	30	15
12	Use of edible oil and sodium bi carbonate to cure tympany	116	58	40	20	64	32
13	Feed chalk powder and katechu for dysentery	90	45	38	19	72	36
14	Feeding Coriander (<i>Coriandrum sativum</i>) seed and Jira (<i>Cuminum cyminum</i>) for indigestion	80	40	82	41	38	19
15	Keeping poultry birds for control of external parasites	102	51	25	12.5	73	36.5
16	Use of tobacco (<i>Nicotiana tabacum linn</i>) powder to cure scabies.	52	26	38	19	110	55
17	Use of regurgitate salty water or chewed tobacco for eye infection	102	51	41	20.5	57	28.5
18	Feeding cotton seeds to increase milk yield	105	52.5	43	21.5	52	26
19	Keeping dummy statue of calf in front of cow/ Buffalo during milking if the calf died earlier.	124	62	15	7.5	61	30.5
20	Feeding sprouted wheat (<i>Triticum aestivum</i>) to anoestrus cow.	60	30	30	15	110	55

SOURCE: FIELD SURVEY

The data indicated that majority of the respondents had followed completely the indigenous practices like use of sickle type hand chaff cutter (90 per cent), use of camphor in coconut oil for treatment of wound with maggots (62.5 per cent), keeping the appumari (*Gymnema sylvestre*) branch in shade to inhibit appearance of snake (62.5 per cent), keeping dummy statues of calf in front of cow/ buffaloes during milking if the calf died earlier (62.0 per cent), Feeding dried sugarcane leaves or paddy straw for retention of placenta (60.00 per cent), use of edible oil and sodium bicarbonate for tympany (58.04 per cent), feeding cotton seeds to increase milk yield (52.5 per cent), use of regurgitation of salted water or chewed tobacco for eye infection (51.0 per cent), use of butter and turmeric powder for neck sore (51.00 per cent), keeping poultry for external parasites (51.0 per cent), use of writing ink to treat burns (50.0 per cent), preparation of cattle shade by using grass, sugarcane leaves, tur/cotton stock (45.00 per cent) use of Jakamjodi (*Tridax procumbens*) leaves for wound (44.0 per cent) and feeding coriander (*Coriandrum sativum*) seed and jira (*Cuminum cyminum*) for indigestion (40.0 per cent).

It was further noticed that about half of the respondents never followed indigenous practices which included use of sprouted wheat (*Triticum aestivum*) for anoestrus cow (55 per cent), use of tobacco (*Nicotiana tabacum linn*) powder to cure scabies (55.0 per cent) and feeding coriander (*Coriandrum sativum*) paste to cure FMD (49.0 per cent). Similar findings were also reported by Kokate and Tyagi (1991), Chittiraichenvan and Raman (1992), Chandar and Mukherjee (1994), Anonymous (2000).

Livestock farmers had adopted most of the indigenous practices, generally, because of their low cost, local availability, prepared and repaired in village it self, easy to carry, no skill required and not harmful to animals whereas livestock farmers had discontinued adoption of very few indigenous technologies because no knowledge of these indigenous technologies, easy availability of the veterinary aids

Table III Relationship of independent variables with adoption of indigenous technology (N=200)

Sr. No	Independent variable	'r' value
1	Age	0.182*

2	Education	-0.342 **
3	Family size	0.329 **
4	Farming experience	0.428 **
5	Land holding	0.241 **
6	No. of farm animal	0.210 *
7	Annual income	0.056 Ns
8	Socio-economic status	0.0284 Ns
9	Social participation	0.114 Ns
10	Distance from veterinary clinic	0.488 **
11	Sources of information	0.452 **
12	Attitude towards indigenous	0.486 **
13	technology	-0.342 **
14	Scientific orientation	-0.0547 Ns
15	Cosmopolitaness	0.382 **
16	Risk orientation	0.692 **
	Fatalism	

** SIGNIFICANT AT 0.01 LEVEL OF PROBABILITY.
NS= NON SIGNIFICANT

*SIGNIFICANT AT 0.05 LEVEL OF PROBABILITY

From table 3 it could be observed that, of the 16 independent variables 10 variables viz age, family size, farming experience, landholding, number of farm animals, distance from veterinary clinic, sources of information, attitude towards indigenous technology, risk orientation and fatalism had positive and significant relationship with the extent of adoption of indigenous technology. It might be because indigenous technologies being based on accumulated experience, low cost, favourable attitude and least risk. Education and scientific orientation had negative and significant association with the extent of adoption might be due to both lead to much exposure to modern technologies.

Regression analysis of independent variables with adoption about indigenous technologies

The set of 16 selected variables could explain 91.5 per cent variation in adoption of indigenous technologies in livestock management. The variables age, number of animals, sources of information, attitude towards indigenous technologies and fatalism had positive and significantly contributed whereas scientific orientation have exhibited negative contribution in adoption of indigenous technologies. Thus, it could be inferred that age, numbers of farm animals, sources of information, attitude towards indigenous technology scientific orientation and fatalism had significantly contributed, and these variables were crucial to determine adoption of indigenous technologies.

IV. CONCLUSION

The study concluded that current investigation should be useful to the planners and executers of livestock farmers' development strategies in the state. In the extension efforts of transmission of indigenous technology for livestock management the farmers with characters like number of farm animals, social participation, sources of information and attitude towards indigenous technologies may be contracted first to introduce these technologies in the villages as these characteristics governed the adoption of indigenous technology. The indigenous technology meeting multiple needs may be taken up on priority for their validation and spread among livestock farmers. Case studies on success stories of adoption of indigenous technologies may be undertaken by the extension agencies for their further popularization and dissemination.

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