

Extent of knowledge of improved animal husbandry practices and socio-economical, psychological characteristics of dairy farmers of Yavatmal district of Vidarbha (Maharashtra)

A.C. LOHAKARE¹, B.P. KAMDHI, M.K. NAKADE¹, V.K. BASUNATHE¹ AND VAISHALI BANTHIYA¹

Members of the Research Forum

Associate Author :

¹Department of Veterinary and Animal Husbandry Extension, Nagpur Veterinary College, Seminary Hills, NAGPUR (M.S.) INDIA

Abstract : The study was conducted at Nagpur Veterinary College, Nagpur, Maharashtra during 2009-10. The study had been conceptualized with overall objectives to assess the knowledge of improve animal husbandry practices and socio-economical, psychological characteristics of dairy farmers in adoption of improved animal husbandry practices. It is observed that, majority of the dairy farmers belonged to middle age group and obtained secondary education. Majority of respondents were in medium level of family size, land size, herd size, daily milk production, daily milk sale, annual income, social participation, utilization of information sources and attitude. Study reveals that, majority of respondents *i.e.* 79.04 per cent were in medium category with respect of their level of knowledge of improved animal husbandry practices, followed by high level of knowledge 8.58 per cent and 12.38 per cent in low level of knowledge. The practice wise knowledge study showed that, majority of the respondents had 44.14 per cent complete knowledge regarding health care practices, followed by clean milk production (40.00%), calf rearing (33.73), management (28.66), breeds and breeding (25.47), feeding (22.85), housing (15.91) and marketing (12.85). The least knowledge for Insurance practices (4.66).

Key words : Knowledge, Socio-economic characteristics, Improved animal husbandry practices

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AUTHOR FOR CORRESPONDENCE :

B.P. KAMDHI

Indian Veterinary Research Institute, Izatnagar, BAREILLY (U.P.) INDIA
Email: bhupeshkamdi@gmail.com

INTRODUCTION

In Maharashtra state total livestock production reported 359554 thousand including 16184 thousand cattle and 6073 thousand buffaloes (Livestock census, 2007). It is also reported that Maharashtra state generates about 1.6 crore lt of milk every day, out of which Kolhapour district of western Maharashtra alone producing about 20 lakh lt of milk. As against of this Vidharbha region produces only 80,000 lt of milk per day. It is stated 80 per cent of milk is

produced in only eight districts of western Maharashtra, whereas the rest of the state (25 district) contribute only 20 per cent of milk (The Hitwada, 26th October, 2004).

Most of the rural farmers who keep dairy animals hardly could follow dairy practices with full recommendations due to involvement of the complexity in terms of knowledge and skills in adoption of the dairy innovation. There is an urgent need to sensitize the dairy farmers to the modern technologies and scientific interventions in dairy production in order to enhance milk yield and milk quality from dairy animals.

Keeping the above problems in view, the present study was taken up with the specific objectives to study the knowledge and socio-economic status of the cattle owners in adoption of improved animal husbandry practices.

RESEARCH METHODOLOGY

The present study has conducted in purposively selected Yavatmal district of Vidarbha region in Maharashtra state. Three tahsils namely Wani, Maregaon and Kalamb with high density of dairy farmers selected randomly. A cattle owner rearing at least two cattle was selected as respondent for the study. Ten respondent from each village and seven villages from each tahsils were selected randomly, total 210 respondents were selected randomly. The desirable data related to socio-economic and psychological characteristics *viz.*, age, education, family size, land size, heard size, daily milk production, daily milk sale, annual income, social participation, utilization of information sources collected directly by personal interview through structured type of interview schedule. The level of knowledge of improved animal husbandry practices was measured and scored on three-point continuum scale as complete–2, partial–1 and no knowledge–0. Further categorized as low, medium and high on the basis of mean and standard deviation.

RESULTS AND DISCUSSION

The findings of the present study as well as relevant discussion have been presented under following heads :

Socio-economic, psychological characteristics of cattle owners :

Age :

Table 1 reveals that, majority (63.81%) of the respondents were belonging to middle age, followed by old (18.57%) and 17.62 per cent of respondent were belonged to young age group. It might be due to middle age is considered as productive time period in the life of an individual whereas, younger generation found to be less interested in taking up dairy farming as its occupation. This finding is supported by Toppo (2005); Bhatt (2006); Durgga (2009); Saha *et al.* (2010); Raval and Chandawat (2011).

Education :

Majority 55.77 per cent of respondents educated up to secondary while 12.86 per cent, respondents had primary and higher secondary school education. However, very meager 6.98 per cent of the respondents were educated up to graduation. It might be due to the lack of interest because of inadequate and insufficient facilities to perceive the higher education. Similar findings also reported by Bhatt (2006); Durgga (2009); Raval and Chandawat (2011).

Family size :

The size of family plays an important role for taking a decision regarding adoption of an innovation thought and action of the individual members. Majority of respondent (81.43 %) were having medium family size *i.e.* 4 to 9 members, followed by big size (11.42 %) and 7.15 per cent had the small size families. The findings are in line with the Saha *et al.* (2010).

Land size :

More than one-third (33.95 %) of respondent were medium, followed by large (31.91 %) and (23.02 %) small

farmers. The sizable respondents in each category of the land holding indicated that the dairy farming is an important subsidiary occupation irrespective of the land holding.

Herd size :

Majority of (70.00 %) respondents were having medium herd size *i.e.* 3 to 9 animals followed by high (16.20 %) and low herd size (13.80 %). It might be due to the large number of cattle owners keeping the herd of non-descript and deshi cattle.

Table 1 : Socio-economic, psychological characteristics of cattle owners (n = 210)			
Characteristics	Category	Frequency	Percentage
Age	Young age (up to 33.5 yrs.)	37	17.62 %
	Middle age (33.6 to 54.5 yrs.)	134	63.81 %
	Old age (54.6 yrs and above)	39	18.57 %
Education	Illiterate	24	11.53 %
	Primary (up to 4 th std.)	27	12.86 %
	Secondary (5 th to 10 th std.)	119	55.77 %
	Higher secondary (11 th and 12 th)	27	12.86 %
	Graduation and above	13	6.98 %
Family size	Low (up to 3.58)	15	7.15 %
	Medium (3.59 to 9.01)	171	81.43 %
	High (9.02 and above)	24	11.42 %
Land size	Landless	15	7.26 %
	Marginal farmer (up to 2.5 acs.)	06	2.86 %
	Small farmer (2.6 to 5.0 acs.)	50	23.02 %
	Medium farmer (5.1 to 10.0 acs.)	72	33.95 %
	Large farmer (above 10.0 acs.)	67	31.91 %
Herd size	Low (up to 2.51)	29	13.80 %
	Medium (2.52 to 9.44)	147	70.00 %
	High (9.45 and above)	34	16.20 %
Daily milk production	Low (up to 1.88)	23	10.95 %
	Medium (1.89 to 13.33)	157	74.76 %
	High (13.34 and above)	30	14.29 %
Daily milk sale	Low (up to 0.87)	23	10.95 %
	Medium (0.88 to 12.12)	157	74.76 %
	High (12.13 and above)	30	14.29 %
Annual income	Low income (up to 22338.80)	25	11.90 %
	Medium income (22338.81 to 108548.77)	146	69.52 %
	High income (108548.78 and above)	39	18.58 %
Social participation	Low (up to 0.64)	09	4.28 %
	Medium (0.65 to 3.31)	174	82.86 %
	High (3.32 and above)	27	12.86 %
Utilization of information sources	Low (up to 12.43)	11	5.23 %
	Medium (12.44 to 25.82)	170	80.96 %
	High (25.83 and above)	29	13.81 %
Knowledge	Low (up to 48.33)	18	8.58 %
	Medium (48.34 to 75.30)	166	79.04 %
	High (75.31 and above)	26	12.38 %
Attitude	Low (up to 28.2)	20	9.53 %
	Medium (28.3 to 39.6)	152	72.38 %
	High (39.7 and above)	38	18.09 %

Daily milk production :

About 75 per cent of the respondents were found in medium category of milk production *i.e.* 2 to 13 lt. Most of the cattle owners keeping their non-descript and deshi cattle for manure and bullocks for draught without much emphasis on milk production. However, 14.29 per cent of the respondents were high milk producer in the study area.

Daily milk sale :

It is revealed from the study that, majority (74.76 %) of respondents had medium level of milk sale *i.e.* up to 1 to 12 lt per day followed by high milk sale (14.29 %) and (10.95 %) low milk sale.

Annual income :

It is reported that, majority (69.52 %) of the respondents were having medium income, followed by high income 18.58 per cent and low income 11.90 per cent. The majority of the cattle owners had the medium income may because of getting the limited amount of income from various sources like agriculture, dairy farming and others.

Social participation :

It is revealed from study that, more than 80 per cent of the respondents found in medium category of social participation it indicated that most of the cattle owner might have participated in more than one rural social organization like SHGs, village co-operative society and gram panchayats etc.

Utilization of information sources :

It is observed that, majority (80.96 %) of respondents were belonged to the category of respondents utilizing medium source of information. About 13.81 per cent of respondents utilized information sources at high level. It might be possible due to the modernization and advancement in information technology, which makes the availability of information tools ready in hand like TV, computer and mobile. These findings are in line with Bhakar *et al.* (2006) and Sharma *et al.* (2007).

Attitude :

It is observed that, majority (72.38 %) of respondents had medium attitude towards animal husbandry practices, followed by high (18.09 %) and (9.53 %) low attitude. The medium attitude of the cattle owners might because of medium level of education, insufficient information and limited knowledge about improved dairy practices.

Distribution of respondents according to their knowledge level :

Table 2 explicit that, majority of respondents (79.04 %) had medium, followed by high (12.38 %) and only (8.58 %) of the respondents had low level of knowledge. Majority of respondents were having medium level of knowledge because of less awareness about the improved dairy practices, poor communication between the farmers and the extension workers, scientists and other developmental department. These findings are in the line with finding of Shinde *et al.* (1998); Sharma *et al.* (2007); Mande *et al.* (2008); Patil *et al.* (2009); Binkadkanti *et al.* (2012); Raval and Chandavat (2012) and Dubey *et al.* (2013).

Knowledge about improved animal husbandry practices :**Knowledge about breeds and breeding practices :**

It is revealed from Table 3 that, overall 57.51 per cent of respondents had partial knowledge whereas, 25.47 per

Table 2 : Distribution of respondents according to their knowledge level			(n=210)
Sr. No.	Category	Frequency	Per cent
1.	Low	18	8.58 %
2.	Medium	166	79.04 %
3.	High	26	12.38 %
	Total	210	100.00 %

cent and 16.48 per cent of the respondents had complete and no knowledge about breeds and breeding practices in dairy farming. This might be due to that most of the dairy farming business oriented cattle owners used to keep the super facial knowledge about breeds and breeding practices. More than 60 per cent of the respondents had no knowledge of variety of breeds for milking and partial knowledge about exotic breed of cattle. Majority of respondents had partial knowledge about selective breeding (69.05 %) detection of heat (65.24 %), about A. I. practices (60 %), time of insemination (59.05 %) This finding is in line with Arora *et al.* (2006). However, about 72 per cent of respondents able to identify the appropriate age of crossbreed cow for first calving. The similar findings also reported by Binkadkatti *et al.* (2012).

Knowledge about feeding practices :

Overall, about feeding practices in dairy farming majority (54.80 %) of respondents had partial knowledge followed by 22.85 per cent and 22.33 per cent had complete and no knowledge. This might be due to lack of interest of cattle owners in feeding management. Majority of (76.67 %) had partial knowledge about offering of green fodder each cow as per requirement. About use mineral bricks of 2 per cent mineral mixture in feed 58.57 per cent respondents had partial knowledge. Majority (62.38 %) of respondents had complete knowledge about socking of concentrate cake/ concentrate mixture in water before one hour of feeding. Majority (69.05) of respondents had partial knowledge about offering of dry fodder as per requirement. About fifty per cent of respondents had partial knowledge of cultivation of fodder crops for green fodder production. 47.14 per cent of respondents partially know about breeding bull nutrition whereas, 44.46 not known about per day concentrate feeding. Feeding of extra allowance of concentrate to Deshi and Cross breed cattle during advance pregnancy and in lactation partially known by 62.38 per cent and 76.67 per cent of the respondents.

Knowledge about housing practices :

Table 3 shows that about 45 per cent of respondents had partial knowledge about housing practices, followed by (38.59 %) of respondents had no knowledge and (33.42 %) had complete knowledge, respectively. This might be because of inadequate knowledge scientific housing practices and financial constraints like non-availability of capital for construction of animal house and prevailing traditional practices of keeping the animal under tree shades also hinders the knowledge gain process. Majority (70.00) of respondents had partial knowledge about types of house *i.e.* loose house and conventional dairy bran. Majority of respondents did not know about flooring of cattle shades and types of walls. Majority of respondents had partial knowledge about roof. Majority (51.43 %) of respondents did not know regarding provision of manger and water trough. About 55.71 per cent of respondents had partial knowledge about necessity of provision of slop (1:10) in floor. Majority (44.76) of respondents did not know about necessity of provision of sufficient space (20-30 sqft per cow) and ventilation in dairy cattle shed for air circulation and sunlight.

Knowledge about management practices :

Table 3 explicit that, majority of respondents (46.19 %) had partial knowledge about management practices like grooming, cleaning, maintenance of record etc. followed by (28.66 %) had complete knowledge and (25.14 %) had no knowledge, respectively. This might be due to farmers lack of knowledge about better management can reduce diseases and increase production of dairy cattle. Majority (50.95 %) of respondents had partial knowledge about cleaning of animal shed, 63.33 per cent had partial knowledge about disinfection of animal shed every week. Majority (49.50 %) of respondents had partial knowledge about grooming, washing and cleaning of dairy cattle everyday. About 77.14 per cent did not know maintenance of record of production, reproduction, vaccination of dairy animal, majority of respondents. This might because of illiteracy of respondents and less attention towards maintenance of records.

Knowledge about health care practices :

Table 3 shows that, majority of (49.79 %) of respondents had partial knowledge about health care practices, followed by (44.14 %) had completed and (6.05 %) no knowledge, respectively. This might be due to negligence of

Table 3 : Knowledge about improved animal husbandry practices		(n=210)					
Sr. No.	Improved animal husbandry practices (do you know?)	Complete		Partial		No	
		Freq.	%	Freq.	%	Freq.	%
Breeds and breeding							
1.	Milch purpose deshi breeds of cattle	30	14.29	51	24.29	129	61.43
2.	Milch purpose exotic breeds of cattle	33	15.71	138	65.71	39	18.57
3.	Selection of male and female for breeding on the basis of good potentiality and alertness	40	19.05	145	69.05	25	11.90
4.	Detection of heat	65	30.95	137	65.24	8	3.81
5.	Artificial insemination	75	35.71	126	60.00	9	4.29
6.	Pregnancy diagnosis	98	46.67	101	48.10	11	5.24
7.	Time of insemination	57	27.14	124	59.05	27	12.86
8.	Age of crossbreed cow for first calving	30	14.29	151	71.90	29	13.81
	Overall	53.5	25.47	121.6	57.91	34.6	16.48
Feeding							
1.	Offering green fodder each cow as per requirement	39	18.57	161	76.67	10	4.76
2.	Use of mineral brick of 2 % mineral mixture in feed	76	36.19	123	58.57	11	5.24
3.	Socking of concentrates cakes / concentrate mixture in water before one hour of feeding	131	62.38	55	26.19	24	11.43
4.	Offering of dry fodder per day as per requirement	34	16.19	145	69.05	31	14.76
5.	Feeding of chaffed fodder	31	14.76	91	43.33	88	41.90
6.	Cultivation of fodder crop for green fodder production	37	17.62	107	50.95	66	31.43
7.	Offering 3 kg green fodder behind 100 kg body weight of breeding bull per day	29	13.81	99	47.14	82	39.05
8.	Feeding 1 to 2 kg concentrate per day per breeding bull	38	18.10	78	37.14	94	44.76
9.	Feeding of extra allowance of concentrate ration during advance pregnancy by 1.25 kg and 1.75 kg per day for deshi and cross breed animal	32	15.24	131	62.38	47	22.38
10.	Feeding of extra allowance of concentrate ration during lactation by 1.25 kg. And 1.75 kg per day for deshi and cross breed animals	33	15.71	161	76.67	16	7.62
	Overall	48	22.85	115.1	54.80	46.9	22.33
Housing							
1.	Housing system - loose house system / conventional dairy bran	43	20.48	147	70.00	20	9.52
2.	Flooring – katcha / murum / rcc	20	9.52	88	41.90	102	48.57
3.	Roof – Thatch / Tin / Asbestos / RCC	43	20.48	86	40.95	81	38.57
4.	Walls – Full / half / no walls	46	21.90	77	36.67	87	41.43
5.	Provision of manger (20 -24 inches) and water trough in shed	37	17.62	65	30.95	108	51.43
6.	Necessity of provision of slope (1:10) in floor	18	8.57	117	55.71	75	35.71
7.	Provision of sufficient space (20 - 30 sqft. per cow) and ventilation in dairy cattle shed for air circulation and sunlight	27	12.86	89	42.38	94	44.76
	Overall	33.42	15.91	95.5	45.5	81	38.59
Management							
1.	Cleaning of animal shed every day	70	33.33	107	50.95	33	15.71
2.	Disinfection of animal shed every week by disinfectant	62	29.52	133	63.33	15	7.14
3.	Grooming, washing and cleaning of dairy cattle every day	95	45.24	104	49.52	11	5.24
4.	Maintaining the record of production, reproduction, vaccination of dairy animals	12	5.71	36	17.14	162	77.14
5.	Provision of potable water	62	29.52	105	50.00	43	20.48
	Overall	60.2	28.66	97	46.19	52.8	25.14
Health care							
1.	Different diseases of the cattle	93	44.29	109	51.90	8	3.81
2.	Vaccination against H.S. and B.Q. annually before onset of monsoon	112	53.33	83	39.52	15	7.14
3.	Vaccination against F.M.D. twice a year <i>i.e.</i> September and March	115	54.76	79	37.62	16	7.62

Table 3 contd...

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4.	Deworming of dairy cattle	61	29.05	131	62.38	18	8.57
5.	Spraying of acaricide in case of attack of external parasite on cattle	36	17.14	152	72.38	22	10.48
6.	Herbal treatment of the sick animal	139	66.19	69	32.86	2	0.95
7.	Animal treatment in hospital	93	44.29	109	51.90	8	3.81
	Overall	92.71	44.14	104.5	49.79	12.71	6.05
Clean milk production							
1.	Washing of hands of milker with soap/antiseptic solution before milking	138	65.71	66	31.43	6	2.86
2.	Cleaning of udder with clean water and drying before and after milking	104	49.52	99	47.14	1	0.48
3.	Use of clean milk utensils	165	78.57	33	15.71	12	5.71
4.	Dipping of teats in potassium permanganate or any suitable antiseptic solution before and after milking	05	2.38	60	28.57	145	69.04
5.	Full hand milking	41	19.52	55	26.19	114	54.29
6.	About Personal hygiene	51	24.29	141	67.14	18	8.57
	Overall	84	40.00	75.6	36.53	49.3	23.49
Calf rearing							
1.	Rearing of calf (suckling or weaning)	34	16.19	65	30.95	111	52.86
2.	Naval cord care of new born calf	47	22.38	129	61.43	34	16.19
3.	Feeding of colostrums to new born calf	135	64.29	61	29.05	14	6.67
4.	Follow up of deworming schedule	57	27.14	123	58.57	30	14.29
5.	Vaccination of calves against B.Q. annually before onset of monsoon at 6 th month of age	59	28.10	99	47.14	52	24.76
6.	Calf raising for – Cow / Bullock / Bull / sell	93	44.29	107	50.95	10	4.76
	Overall	70.83	33.73	97.33	46.34	41.83	19.92
Marketing							
1.	Price of milk is determine on which basis	45	21.43	133	63.33	32	15.24
2.	Different value added milk product	21	10.00	161	76.67	28	13.33
3.	Marketing channels	15	7.14	175	83.33	20	9.52
	Overall	27	12.85	156.3	74.77	26.66	12.59
Insurance							
1.	Insurance of dairy animals	10	4.76	24	11.43	176	83.81
2.	Claim of insured animals	4	1.90	22	10.48	184	87.62
3.	Companies of Insurance	15	7.14	65	30.95	130	61.90
	Overall	9.66	4.66	37	17.61	163.3	77.76

respondents towards health care practices. Traditional approaches and superstitious attitude also hinder awareness and knowledge gain. Majority of respondents had partial knowledge about different diseases of cattle. More than 50 per cent of the respondents had complete knowledge about vaccination against outbreak diseases like H.S., B.Q. and F.M.D. The high level of knowledge about vaccination might be due to facility of vaccination provided by department of animal husbandry at farmer's doorstep. These finding also supported by the findings of Saha *et al.* (2010). About 62.38 per cent of respondents had partial knowledge about deworming and (72.38 %) about spraying of acaricide in case of attack of external parasite on cattle.

Knowledge about clean milk production :

As regards the knowledge level about clean milk production in Table 3 indicated that, 40 per cent of respondents had complete knowledge (36.51 %) had partial knowledge and (23.49 %) of the respondents had no knowledge about clean milk production. This might be due to clean milk production related to human health, production and economics of dairy unit. These finding is in line with Binkadkatti *et al.* (2012). Majority of respondents had complete knowledge

about washing of hands with soap before milking, cleaning of odder with clean water and drying before and after milking and using of clean milk utensils. Dipping of teats in potassium permanganate solution before milking 69.04 per cent had no knowledge. Majority did not know about full hand milking method.

Knowledge about calf rearing practices :

Table 3 shows that, 46.34 per cent of respondents had partial followed by complete (33.73 %) and (19.92 %) no knowledge about calf rearing. Majority (52.86 %) of respondents had no knowledge about method of rearing of calf like weaning or suckling. More than 60 per cent of respondents had partial knowledge about Naval cord cutting of newborn calf. Majority of respondents (64.29 %) had complete knowledge about feeding of colostrums. Majority of respondents had partial knowledge about deworming schedule, vaccination of calves against B.Q. and calf raising. This finding supported by the findings of Debashish Saha *et al.* (2010).

Knowledge about marketing practices :

Table 3 shows that, majority (74.44 %) of respondents had partial knowledge about marketing practices, followed by (12.85 %) and (12.69 %) had complete and no knowledge, respectively. This might be due to establishment of organize and unorganized sectors who procures milk to some extent is responsible for catching attention of farmers towards marketing practices. About 63.33 per cent had partially known on which basis price of milk is determine. Knowledge about value added milk product majority of respondents (76.67 %) had partial knowledge regarding marketing channels majority (83.33 %) had partial knowledge.

Knowledge about insurance practices :

Table 3 shows that, majority (77.76 %) respondents had lack knowledge about insurance practices like claim of insurance, insurance of dairy animals and companies of insurance. (17.61 %) respondents had partial knowledge and only (4.66 %) of respondents had complete knowledge. This might be due to lack of awareness about insurance of dairy cattle and failure of insurance companies to reach up to rural community. Also awareness amongst the people about insurance of cattle is less due to non-availability of capital. These findings are supported by Gupta *et al.* (2003); Rehman *et al.* (2005).

Conclusion :

Majority of the respondents had medium knowledge about improved animal husbandry practices in dairy farming. The field level extension programmes like training and demonstration should be organized for enrichment of knowledge and skill about breeds and breeding, feeding, health care and management as well as production and marketing practices in the dairy business. The exposure visit of the dairy farmers in the study area should be organized to acquire the sound knowledge about commercial dairy business, which may be helpful to shift them from traditional to modern, and scientific dairy farming practices. More efforts needs to be directed towards the interest of middle age grouped middle class and medium type of dairy farmers who is actively involved in the dairy business with positive attitude and good orientation.

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6th Year