



## KNOWLEDGE OF FARM WOMEN REGARDING DAIRY HUSBANDRY IN JUNAGADH DISTRICT OF GUJARAT STATE, INDIA

PATEL S.J.<sup>1\*</sup>, KUMAR R.<sup>2</sup>, PATEL A.S.<sup>3</sup>, PATEL J.H.<sup>1</sup>, CHAUDHARY G.M.<sup>2</sup>, PATEL B.K.<sup>3</sup> AND PARMAR V.N.<sup>3</sup>

<sup>1</sup>Kankuba Pashupalan Vidyapith, Institute of Dairy Sciences, Ganpat University, Ganpat Vidyanagar, Gujarat, India

<sup>2</sup>College of Veterinary Science and Animal Husbandry, Junagadh Agricultural University, Junagadh, Gujarat, India

<sup>3</sup>College of Veterinary Science and Animal Husbandry, Anand Agricultural University, Anand, Gujarat, India

\*Corresponding Author: Email-sanketpatel.vets@gmail.com

Received: February 24, 2016; Revised: February 27, 2016; Accepted: February 28, 2016; Published: March 28, 2016

**Abstract-** A survey study was conducted to acquire the first hand information on Personal and socio-economic characteristics and Knowledge of farm women regarding dairy husbandry in Junagadh district of Gujarat state, India. A simple random sampling technique was used in the selection of dairy farm women. The total sample constitutes 200 dairy farm women, four talukas and five village from each taluka. Total ten (10) respondents selected from each village of the district. The data were collected by personal interview technique through a structural schedule. In Personal and socio-economic characteristics, majority (73.50 %) of the farm women belonged to middle age group, 31 per cent of the farm women were educated up to primary level of education. Majority (44 %) of the dairy farm women were from SEBC caste category, majority (72 %) of the farm women belonged to low level of income (<150000 rupees) group, majority (68.50 %) and (41.50 %) of the farm women belonged to the joint type and large size of families, respectively. Majority (53.50 %) of the farm women respondents were with Marginal land holding i.e. up to 1.00 hectare. Great majority (94.50 %) of farm women had major occupation of animal husbandry along with agriculture. Nearly half of the respondents (47 %) had low social participation. Majority (65.50 %) of the farm women were found with medium experience in dairy farming. Majority (75.50 %) of the farm women used medium sources of information for obtaining information about dairy farming and Majority (57.50 %) of the farm women had medium sized milch animals. In Knowledge of farm women regarding dairy husbandry include majority (63.50%) of the farm women had medium level of knowledge regarding general aspects. Higher number of farm women had knowledge about feeding practices and breeding practices. Maximum (73.50%) farm women had knowledge regarding management of milch animals. Half (55.0%) of the farm women had knowledge about milk and milk products and health care practices of milch animals in dairy husbandry.

**Keywords-** Farm women, Knowledge, Dairy husbandry, Milch animal, Management.

**Citation:** Patel S.J., et al., (2016) Knowledge of Farm Women Regarding Dairy Husbandry in Junagadh District of Gujarat State, India. International Journal of Agriculture Sciences, ISSN: 0975-3710 & E-ISSN: 0975-9107, Volume 8, Issue 10, pp.-1110-1115.

**Copyright:** Copyright©2016 Patel S.J., et al., This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

**Academic Editor / Reviewer:** Mehul Patel, Dr Mahipatsinh Rajput

### Introduction

India is an agriculture based country and livestock sector is an integral component of it. It possesses largest number of livestock in the world. Animal Husbandry and Dairy sector plays a significant role in the national economy and in the socio-economic growth of the country. There is increase in buffalo population by 3.19 % and decrease in cow population by -4.19 % compare to former census [1]. Livestock population has increased substantially in Gujarat (15.36%). Women play multiple roles in animal husbandry. Most of the work concerning livestock management is considered as the traditional responsibility of women [2]. They play a vital role in all spheres of economic life and contribute richly towards national income. Women are considered to be pioneers in all sorts of development, as they play a key role in shaping the character of young generation whom we call as the future of the nation. It has been estimated that about 86 per cent of the total rural women are working for various agricultural operations. It is established beyond doubt that women always participated in dairy and animal husbandry activities in addition to their daily household chores [3]. Women play essential and significant role in livestock rearing but their involvement in livestock rearing has not been given the due place they deserve and constantly remain invisible workers [4].

### Materials and Methods

**Area of the study:** The present study was conducted in Junagadh district of Gujarat state. Junagadh district is located on the Kathiawar peninsula in western

Gujarat.

### Methods of sampling

Present study was carried out in Junagadh District. Four (4) talukas (Junagadh, Keshod, Manavadar and Vanthali) of the District and five (5) villages were randomly selected from each taluka and accordingly ten (10) respondents were randomly selected from each village.

### Selection of the respondents:

The study sample consisted of 200 (N=200) farm women in the district.

### Tools and techniques of data collection:

The data were collected by personal interview technique through a structural schedule. Knowledge levels of farm women were measured in all the categories. i.e. feeding, breeding, health care and milk and milk product practices adopted by farm women in Junagadh district. After measuring the level of knowledge, the data was tabulated and inferences were drawn.

### Data analysis

Collected data were compiled, tabulated and analysed using appropriate statistical tools and techniques like percentage, Mean, Frequency, Standard Deviation and Karl Pearson's correlation coefficient etc. in consultation with statistician in view the objectives of the study.

**Personal and Socio-economic Characteristics of the Farm Women****(1) Age**

Age denotes the chronologically completed calendar years by the respondents. Age influences behaviour of an individual by exposing to varied situations number of times. Therefore, age of the farm women was considered as an essential aspect in this investigation. Data with respect to age are presented in [Table-1]. The findings depicted in [Table-1] indicate that majority (73.50 %) of the farm women belonged to middle age group followed by 14 per cent with young age and 12.50 per cent were from old age group.

**Table-1** Distribution of the farm women according to their age group  
N=200

Sr. No.	Age group (Mean $\pm$ S.D.)	Frequency	Percentage
1.	Young age (less than 36 years)	25	12.50
2.	Middle age (36 to 50 years)	147	73.50
3.	Old age (above 50 years)	28	14.00
	Total	200	100

Mean= 43.34

S.D.= 7.0

From the above discussion, it can be concluded that majority of the farm women belonged to middle age group. The probable reason could be that this age is considered to be an actively working age of the farm women and being responsible for maintaining their families.

The finding of present study was supported from the findings reported by [5-10].

**(2) Education**

The data presented in [Table-2] revealed that 31 per cent of the farm women were educated up to primary level followed by 28.50 per cent of them were educated up to secondary level, 21.50 per cent of them were illiterate, 16.50 per cent of them had completed their higher secondary education and 2.50 per cent were graduate.

**Table-2** Distribution of the farm women according to their level of formal education.  
N=200

Sr. No.	Level of education	Frequency	Percentage
1.	Illiterate (no formal education)	43	21.50
2.	Primary (up-to 7 <sup>th</sup> standard)	62	31.00
3.	Secondary (8 <sup>th</sup> to 10 <sup>th</sup> standard)	57	28.50
4.	Higher secondary (11 <sup>th</sup> to 12 <sup>th</sup> standard)	33	16.50
5.	Graduate	05	02.50
6.	Others	00	00.00
	Total	200	100

This may be due to the availability of primary school and secondary school at village level and higher secondary school at nearby villages. This indicated in spite of comprehensive efforts that in villages, the literacy rate was considerably less and there is scope and need for improvement in the literacy level in the countryside. The women usually involve themselves in dairy farming from their early age and may have not get chance for higher education. Similar findings were also reported by [11-13].

**(3) Caste**

Many farming are caste based occupations if not directly then indirectly and also certain caste of people in Gujarat especially in Junagadh district have more inclination to dairy farming. So caste category as an independent variable was studied and data are presented in [Table-3].

As evident from the data in [Table-3] that 44 per cent of the dairy farm women were from SEBC, followed by 33.50 per cent were from general category, 16.50 per cent were from ST category and only 6 per cent were from SC category. It can be concluded that majority (75 %) of the farm women were belonged general and SEBC category. The reason behind, it may be due to fact that in Saurashtra region- particular in Junagadh, the general and SEBC category

population is more involved in dairy farming. This might be the reason that majority were SEBC category, middle class and to above.

The finding of present study was contradicted with findings of [14] and supported from the findings reported by [15,13,16].

**Table-3** Distribution of the farm women according to their caste category  
N= 200

Sr. No.	Caste category	Frequency	Percentage
1.	General (OPEN)	67	33.50
2.	Other backward class (SEBC)	88	44.00
3.	Schedule caste (SC)	12	06.00
4.	Schedule tribe (ST)	33	16.50
	Total	200	100

**(4) Annual income**

Family income referred to the total amount in rupees, earned in a year from the farm and non-farm sources of all earning members of respondent's family. So, annual incomes as an independent variable was studied and data were categorized into three groups are presented in [Table-4].

**Table-4** Distribution of the farm women according to their annual income  
N= 200

Sr. No.	Category (Annual income in rupees)	Frequency	Percentage
1.	Low income (<150000 Rs.)	144	72
2.	Medium income (150000-300000 Rs.)	52	26
3.	High income (>300000 Rs.)	04	02
	Total	200	100

From the above discussion, it can be concluded that majority (72 %) of the farm women belonged to low level of income (<150000 rupees) group, whereas 26 per cent of farm women family had medium level of income (150000-300000 rupees) and only 2 per cent farm women family had high level of income (>300000 rupees) group. The probable reason could be that most of the rural farm families from lower to middle class and their main source of income based on only agriculture and animal husbandry. The finding of present study was contradicted with findings of [17] and supported from the findings reported by [18].

**(5) Type of family**

It refers to two types, nuclear and joint families that have been included in the study. The nuclear family consisted father/ mother and his/ her wife/ husband as one conjugal and their children as one unit. The joint family referred to that group of persons in which all members live together under one roof, cook and eat together and the earnings from all sources are pooled together and managed by one family head and also consists of two or more conjugal pairs. So types of family as an independent variable was studied and data were categorized into two groups are presented in [Table-5].

**Table-5** Distribution of the farm women according to their type of family  
N= 200

Sr. No.	Category	Frequency	Percentage
1.	Joint	137	68.50
2.	Nuclear	63	31.50
	Total	200	100

The data from [Table-5] indicate that majority (68.50 %) of the farm women belonged to the joint type of families and 31.50 per cent of them belonged to nuclear type of families. This may be due to strong family relationship in rural areas.

The finding of present study was contradicted with findings reported by [19,16] and supported by the findings reported by [20,21].

### (6) Size of family

The size of family refers the total number of individuals living together under common roof, having blood ties with each other and directly dependent on the head of the family. It was thought that size of family might influence the participation and decision making of the farm women in dairy farming. Data in this regard are given in [Table-6].

**Table-6** Distribution of the farm women according to their size of family  
N=200

Sr. No.	Size of family	Frequency	Percentage
1.	Small family (up-to 4 members)	41	20.50
2.	Medium family (5 to 6 members)	76	38.00
3.	Large family (>7 members)	83	41.50
	Total	200	100

The data from [Table-6] indicate that majority (41.50 %) of the farm women belonged to the large sized families i.e. above 7 members, while 38 per cent of them belonged to medium sized families having 5 to 6 members and only 20.50 per cent of the farm women belonged to small sized families having up to 4 members.

It can be concluded from above [Table-6] that majority (41.50 %) of the farm women were having large size family. This may be due to unawareness about family planning programme, strong relationship in rural areas and thought of more head might impart more work and thus generate more income to family.

This finding has been supported by findings of [5, 22, 23].

### (7) Size of land holding

Size of land holding refers to the number of hectares of land owned and operated by the family of the respondent. It largely determines both economic and social status of a family in the rural areas. In the present investigation, the data regarding the land owned by the families of the farm women were collected and are presented in [Table-7].

It is apparent from the data in [Table-7] that majority (53.50 %) of the farm women respondents were with marginal land holding i.e. up to 1.00 hectare followed by 30.50 per cent with small land holding, 12.50 per cent with medium size of land holding and 2.50 per cent with landless farm women. Only 1 per cent of the respondents were large farmers i.e. with land holding above 4.00 hectare.

**Table-7** Distribution of the farm women according to their size of land holding  
N=200

Sr. No.	Land holding	Frequency	Percentage
1.	Landless (no land)	05	2.50
2.	Marginal (up-to 1.00 hectare)	107	53.50
3.	Small (1.01 to 2.00 hectare)	61	30.50
4.	Medium (2.01 to 4.00 hectare)	25	12.50
5.	Large (above 4.00 hectare)	02	01.00
	Total	200	100

On the basis of the above results, it can be concluded that majority of the respondents were having marginal land holding up to 1.00 hectare. On the basis of Indian family system parents used to give a part of their land to their children as share after their marriage. Due to this continuous process and emergence of large number of nuclear families caused reduction in the land holding level of families. Industrialization and urbanization also played important role for reducing the per capita availability of land. The finding of present study was contradicted with

findings of [24] and support from the findings reported by [25, 8, 20].

### (8) Occupation

Occupation is one of the important factors, which contributes to the annual income of the dairy farm women. It also reflects socio-economic status of an individual in society. In the present investigation, the data regarding the occupation of the farm women were presented in [Table-8].

It can be concluded that majority (94.50 %) of farm women of Junagadh district had major occupation of animal husbandry along with agriculture and very few (2 %) were performing only animal husbandry occupation and only 0.50 per cent and 3 per cent had occupation as animal husbandry along with agriculture and government services and agriculture and private services, respectively.

The possible reason might be that the respondents may have found the farming and animal husbandry as an interdependent business enterprise and more combinations that are remunerative.

**Table-8** Distribution of the farm women according to their occupation  
N= 200

Sr. No.	Category	Frequency	Percentage
1.	Animal Husbandry	04	02.00
2.	Animal Husbandry + Agriculture Farming	189	94.50
3.	Animal Husbandry + Agriculture Farming + Government Services	01	00.50
4.	Animal Husbandry + Agriculture Farming + Private Services	06	03.00
	Total	200	100

This finding has been supported by findings of [26, 22, 20].

### (9) Social participation

Participation in different social activities definitely influences one's way of thinking, acting and behaving. It is seen that more social participation by the elders in the family has greater influences on the family members. Keeping this in view, social participation of the respondents was studied and data in this regard are presented in [Table-9].

**Table-9** Distribution of the farm women according to their social participation  
N=200

Sr. No.	Social participation	Frequency	Percentage
1.	Low (below 0.37 score)	94	47
2.	Medium (between 0.37 to 1.43 score)	92	46
3.	High (above 1.43 score)	14	07
	Total	200	100

As reveals from data presented in [Table-9] that nearly half of the respondents (47 %) had low social participation followed by 46 per cent with medium social participation and only 7 per cent of the respondents were having high social participation. It can be inferred from [Table-9] that majority of the respondents were having low and medium social participation. Because some of the villages had milk co-operative society and in some villages had absence of co-operative dairy. This finding is in line with the findings of [8, 12].

### (10) Experience in dairy farming

Knowledge, participation and decision making of farm women might be influenced by the experience of farm women in dairy occupation as experience help in developing maturity and ability to face varied situations. The data regarding the experience of farm women in dairy occupation were collected and are presented in [Table-10].

It can be observed from the data presented in [Table-10] that 65.50 per cent of the respondents were found with medium experience followed by 20 per cent with high level of experience and 14.50 per cent of them had low level of experience in

dairy farming.

It can be concluded that two third of the farm women had medium experience of dairy farming. This may be due to the fact that majority of the respondents were practicing dairy farming since 14 to 29 years. Further, it also provides additional income, which motivates them for dairy farming. This finding has been supported by the findings of [9, 24].

**Table-10** Distribution of the farm women according to their experience in dairy farming

N=200			
Sr. No.	Experience in dairy farming (Mean $\pm$ S.D.)	Frequency	Percentage
1.	Less (less than 14 years)	29	14.50
2.	Medium (between 14 to 29 years)	131	65.50
3.	High (above 29 years)	40	20.00
Total		200	100
Mean= 21.82		S.D.= 8.05	

### (11) Information sources

Sources of information refer to the various information channels used by the farm women for getting information about dairy business. The data in this respect are presented in [Table-11].

**Table-11** Distribution of the farm women according to the extent of sources of information used by them

N=200			
Sr. No.	Extent of sources of information used (Mean $\pm$ S.D.)	Frequency	Percentage
1.	Less used (less than 9 score)	20	10.00
2.	Medium used (between 9 to 13 score)	151	75.50
3.	More used (13 and above score)	29	14.50
Total		200	100
Mean= 10.9		S.D.= 2.09	

It is conspicuous from [Table-11] that majority (75.50 %) of the farm women used medium sources of information for obtaining information about dairy farming, whereas 14.50 per cent and 10 per cent of them used more and less use sources of information, respectively.

Form above discussion, it is evident that majority of the farm women used sources of information to the extent of medium level for obtaining information. This may be due to availability of dairies like Maahi and Sorath as well as availability of veterinary dispensary at taluka places which acts as source of information for farm women. The finding of present study was contradicted with findings of [9] and support from the findings reported by [22].

### (12) Herd size

It refers to the number of milch animals such as cows and buffaloes possessed by the respondents. The interest and participation in decision making of an individual increases with increase in number of animal holdings. The data regarding herd size are presented in [Table-12].

**Table-12** Distribution of the farm women according to herd size

N = 200			
Sr. No.	Herd size	Frequency	Percentage
1.	Small (up to 2 milch animals)	55	27.50
2.	Medium (3-4 milch animals)	115	57.50
3.	Large (More than 4 milch animals)	30	15.00
Total		200	100

A look into [Table-12] shows more than half of the (57.50 %) of the farm women had medium herd size of milch animals followed by 27.50 per cent had small herd size of milch animals while 15 per cent of them had large herd size of milch animals.

This indicates that the farm women had a relatively medium herd size of milch animals. It was observed that majority of farm women had only 1.00 hectare of land, which makes them difficult to maintain large herd size of milch animals. Over burdening of house work might be also one of the reasons for the same.

This finding is similar to the findings reported by [5,8,27-30].

### Knowledge of Farm Women in Dairy Farming

In the present study, knowledge refers the know-how about the different livestock and dairy management practices possessed by the farm women. Adequate knowledge is essential to farm women for the success of dairy enterprises. It was, therefore thought necessary to obtain information from the farm women about the knowledge they possessed about dairy farming. The data regarding the knowledge possessed by the farm women about dairy farming are given in the [Table-13].

**Table-13** Distribution of the farm women according to their knowledge level in dairy farming

Sr. No.	Knowledge level	Range	Frequency	Percentage
1.	Knowledge of the farm women about general aspects of milch animals	<53.68 (low)	15	7.50
		53.68 - 76 (medium)	127	63.50
		>76 (high)	58	29.00
Mean= 64.84		S.D.= 11.16		
2.	Knowledge of the farm women about feeding of milch animals	<50.20 (low)	51	25.50
		50.20-64.38 (medium)	127	63.50
		>64.38 (high)	22	11.00
Mean= 57.29		S.D.= 7.09		
3.	Knowledge of the farm women about breeding of milch animals	<54.06 (low)	36	18.00
		54.06-71.47 (medium)	131	65.50
		>71.47 (high)	33	16.50
Mean= 62.96		S.D.= 8.14		
4.	Knowledge of the farm women about management practices of milch animals	<56.28 (low)	22	11.00
		56.28-78.21 (medium)	147	73.50
		>78.21 (high)	31	15.50
Mean= 67.25		S.D.= 10.96		
5.	Knowledge of the farm women about milk and milk products	<75.46 (low)	89	44.50
		75.46-88.41 (medium)	110	55.00
		>88.41 (high)	1	00.50
Mean= 81.94		S.D.= 6.47		
6.	Knowledge of the farm women about health care of milch animals	<49 (low)	26	13
		49-65.45 (medium)	152	76
		>65.45 (high)	22	11
Mean= 57.22		S.D.= 8.23		



**Knowledge of the farm women about general aspects of milch animals**

The data shown in [Table-13] reveals that 63.50 per cent farm women had medium level of knowledge regarding general aspects followed by 29 per cent had high level and 7.50 per cent had low level of knowledge. Thus, it can be concluded that majority of the respondents were found with medium level of knowledge about general aspects of milch animals.

**Knowledge of the farm women about feeding of milch animals**

Majority (63.50 %) of the farm women had medium level of knowledge regarding feeding followed by 25.50 per cent had low level and 11 per cent had high level of knowledge. Thus, majority of the respondents were found with medium level of knowledge about feeding of milch animals. This finding has been supported by the findings of [31].

**Knowledge of the farm women about breeding of milch animals**

Majority (65.50 %) of the farm women had medium level of knowledge regarding breeding followed by 18 per cent had low level and 16.50 per cent had high level of knowledge. Thus, it can be observed that majority of the respondents were found with medium level of knowledge about breeding of milch animals. This finding has been supported by the findings of [31-33].

**Knowledge of the farm women about Management practices of milch animals**

The data presented in [Table-13] reveals that 73.50 per cent farm women had medium level of knowledge regarding management practices followed by 15.50 per cent had high level and 11 per cent had low level of knowledge. Thus, it can be concluded that majority of the respondents were found with medium level of knowledge about management practices of milch animals. This finding has been supported by the findings of [31,33-35].

**Knowledge of the farm women about milk and milk products**

The data depicted in [Table-13] reveals that 55 per cent farm women had medium level of knowledge regarding milk and milk products followed by 44.50 per cent had low level and 0.50 per cent had high level of knowledge. Thus, it can be concluded that majority of the respondents were found with medium and low level of knowledge about milk and milk products. This finding has been supported by the findings of [36].

**Knowledge of the farm women about health care of milch animals**

Majority (76 %) of the farm women had medium level of knowledge regarding health care followed by 13 per cent had low level and 11 per cent had high level of knowledge. Thus, it can be concluded that majority of the respondents were found with medium level of knowledge about health care of milch animals. This finding has been supported by the findings of [35,31].

**Overall Knowledge level of Farm Women**

The data presented in [Table-14] portrays that 68.50 per cent of the respondents were found with medium level of knowledge about dairy farming, whereas 19 per cent and 12.50 per cent respondents were having with high and low level of knowledge, respectively.

**Table-14** Distribution of dairy farm women according to their overall level of knowledge

Sr. No.	Knowledge level	Frequency	Percentage
1.	Low (below 55.34)	25	12.50
2.	Medium (between 55.34 to 66.84)	137	68.50
3.	High (above 66.84)	38	19.00
	Total	200	100

On the basis of the above result it can be concluded that majority of the respondents were found with medium level of knowledge about dairy farming. The probable reason could be that majority of the respondents were educated up to primary and secondary level of education in the study area and they had used

medium information sources. This definitely influences their knowledge level. This finding is similar to the findings of [37,31].

**Conclusion**

Majority of the farm women had medium level of knowledge regarding general aspects, feeding, breeding, management, milk and milk products and health care of milch animals in dairy farming. Majority of women farmers does not know modern animal husbandry practices because of lower education, low mass media exposure and less availability of extension workers in their villages.

**Conflict of Interest: None declared****References**

- [1] Anonymous (2012-13) Annual Report, Department of Animal Husbandry, Dairying and Fisheries. Ministry of Agriculture, Krishi Bhavan, Gol, New Delhi.
- [2] Rangnekar S.D. (1993) Studies on the knowledge of rural women regarding local feed sources and feeding systems developed for livestock. Proceedings of International conference on increasing livestock production through utilization of local resources, 12-18 October, CECAT, Beijing.
- [3] Belurkar G.M., Wakle P.K. and Gholve M.A. (2003) *Maharashtra Journal of Extension Education*, 22(2), 81-85.
- [4] Chayal K., Daaka B.L. and Suwalka R.L. (2009) *Indian Journal of Dairy Science*, 62(6), 491-494.
- [5] Upadhyay S. (2010) Participation of dairy farm women in animal husbandry occupation. M. Sc. (Agri.) Thesis (Unpublished). Anand Agricultural University, Anand.
- [6] Nishi A., Sah K. and Ram K. (2011) *Indian Res. J. Ext. Edu.*, 11 (1), 74-78.
- [7] Patel K.S. (2011) Privatization of extension services as perceived by the farmers, researchers and extension workers of North Gujarat. Ph.D. Thesis (Unpublished). Sardarkrushinagar Dantiwada Agricultural University, Sardar krushinagar.
- [8] Rathod P.K., Landge S., Nikam T.R. and Vajreshwari S. (2011) *Karnataka Journal of Agricultural Science*, 24(4), 619-621.
- [9] Tekale V.S. (2012) *International Journal of Extension Education*, 8, 56-62.
- [10] Chayal K., Dhaka B.L., Poonia M.K., Tyagi S.V.S. and Verma S.R. (2013) *Stud Home Com Sci.*, 7(1), 35-37.
- [11] Prajapati R.R. (2008) Indigenous resources management by tribal farm women in Banaskantha district of Gujarat state. Ph.D. Thesis (Unpublished). Sardar krushinagar Dantiwada Agricultural University, Sardar krushinagar.
- [12] Lahoti S.R., Chole S.R. and Rathi N.S. (2012) *Indian Journal of Dairy Science*, 65(5), 442-446.
- [13] Borkakoty J. (2013) *International Journal for Basic Sciences and Social Sciences*, 2(2), 139-144.
- [14] Gautam U.S., Chand R. and Singh D.K. (2007) *Indian Res. J. Ext. Edu.*, 7 (2&3), 10-11.
- [15] Gangasagare P.T. and Karanjkar L. M. (2009) *Vet. World*, 2 (8), 317-320.
- [16] Reshma A., Bheemappa A., Natikar K.V., Biradar N., Mundinamani S.M. and Havaladar Y.N. (2014) *Karnataka Journal of Agriculture Science*, 27(2), 173-176.
- [17] Sathyanarayan K., Jagadeeswary V., Chandrashekhar M.V., Wilfred R.S. and Sudha G. (2010) *Vet. World*, 3 (5), 215-218.
- [18] Rathod P., Nikam T.R., Sariput L. and Amit H. (2012) *Indian Res. J. Ext. Edu.*, 2(Special Issue), 1-5.
- [19] Satyanarayan K. and Jagadeeswary V. (2009) *Indian J. Anim. Res.*, 44(2), 100-106.
- [20] Kumar V., Prajapati R.S., Ghintala A. and Singh K. (2013) *Gujarat Journal of Extension Education*, 24, 35-38.
- [21] Kathiriyai J.B., Damasia D.M. and Kabaria B.B. (2013) *Tamilnadu Journal of Veterinary and Animal Sciences*, 9(4), 239-247.
- [22] Raval R.J. and Chandawat M.S. (2011) *International Journal of Farm Sciences*, 1(2), 129-137.

- [23] Meti S.K. (2013) Social and economic empowerment of farm women in agro based entrepreneurship for sustainable income proceeding of the International conference on social science research, ICSSR, 2013 (e-ISBN 978-967-11768-1-8). 4-5 June, 2013. Penang, Malaysia. Organized by worldconferences.net. pp. 1020-1031.
- [24] Patel K.L. (2013) Entrepreneurial behaviour of dairy farm women in Banaskantha district of North Gujarat. M.V.Sc. Thesis (Unpublished). Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar.
- [25] Bhatt P.M. (2006) Effect of mass media exposure on dairy farmers regarding animal husbandry practices. Ph.D. (Agri.) thesis. Anand Agricultural University, Anand.
- [26] Patel B.S. (2005) A study of peasantry modernization in integrated tribal development project area of Dahod district of Gujarat state. *Ph. D. Thesis*, submitted to Anand Agricultural University, Anand.
- [27] Parte L. (2003) Participation of women members in dairy co-operative societies of Anand district. M. Sc.(Agri.) Thesis (Unpublished). Gujarat Agricultural University, Anand.
- [28] Ashwar B.K. (2005) Determinants of attitude and adoption of improved animal husbandry practices of dairy farmers of North Gujarat. Ph.D. Thesis (Unpublished). Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar.
- [29] Jaisridhar P., Sankhala G., Kadian K.S., Kumar S. and Sangeetha S. (2013) *Pakistan Journal of Agricultural Science*, 50(4), 549-553.
- [30] Sharma G.R.K. (2014) *International Journal of Science, Environment and Technology*, 3(3), 1083-1089.
- [31] Kaur R. and Rathore R. (2014) *International Journal of Scientific Research*, 3(1), 197-198.
- [32] Meena M.S. and Chauhan J.P.S. (1999) *Journal of Dairying foods and Home science*, 18(1), 58-60.
- [33] Singh S.P., Pal A.K. and Goel S. (2013) *The Journal of Rural and Agricultural Research*, 13(2), 84-86.
- [34] Sharma K., Singh S.P. and Yadav V.P.S. (2009) *Indian Research Journal of Extension Education*, 9(3), 51-54.
- [35] Prajapati J.V., Bhatt P.M. and Patel J.B. (2012) *Gujarat Journal of Extension Education*, 23, 141-146.
- [36] Devi R., Sangwani S., Singh S.P. and Kumar R. (2008) *Haryana Vet.*, 47, 19-23.
- [37] Patil A.P., Gawande S.H., Nande M.P. and Gobade M.R. (2009) *Veterinary World*, 2(3), 111-112.