



Indian Journal of Hill Farming

June 2017, Volume 30, Issue 1, Page 45-58

Involvement of Farm Women in Decision making Regarding Dairy Farming in Junagadh District of Gujarat State

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ARTICLE INFO

Article history:

Received 24 May 2016

Revision Received 19 September 2016

Accepted 29 November 2016

Key words:

Farm women, Participation, Dairy farming, Milch animals, Management

ABSTRACT

India is an agriculture based country and livestock sector is an integral component. Women play crucial and significant role in livestock rearing, all spheres of economic life and contribute richly towards national income. A survey study was conducted to acquire the first hand information on Personal and socio-economic characteristics and Decision making of farm women regarding dairy farming and also correlation between these two variables studied 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 villages 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% 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 Decision making of farm women regarding dairy farming include majority (80.57% and 80.11%) of farm women involved in decision making about milking and preparation of milk products and management of milch animals, respectively. Majority (72.97% and 68%) of the farm women involved in decision making regarding breeding practices and feeding practices, respectively. Majority (64.12%) of farm women involved in decision making regarding health care practices of milch animals. Majority (55.94%) of the farm women involved in decision making regarding general aspects in dairy farming.

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1. Introduction

Livestock is an important source of supplementary income for over 70 million rural households in India, where over 15-20 percent families are landless and about 70 percent of the landholders belong to the category of small and marginal farmers, income from livestock accounts for about 15-40 per cent of total farm income of the rural households (Ahuja et al. 2003). The contribution of women to national development in the current context and its potential is of greater significance. In India having over 85% of the rural families are dependent on agriculture for their livelihood. Women play a critical and potentially transformative role in animal husbandry growth in developing countries, but they face persistent obstacles and economic constraints limiting further inclusion in animal husbandry. The nature and extent of women involvement in agriculture and livestock activities varies greatly from region to region. The involvement varies widely among different ecological, family systems, cast class and socio-economic status of family (Swaminathan, 1985). It is estimated that about 70 million rural households own livestock of one species or the other. Women constitute about 69% of workforce engaged in livestock sector (Anonymous, 2013). 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 (Belurkar et al. 2003). Women play crucial and significant role in livestock rearing but their contribution in livestock rearing has not been given the due place they deserve and always remain invisible workers (Chayal et al. 2009). India is the world's largest milk producing country with a share of about 16 per cent in world's total milk production. India, the current leader in dairy world, rank 1st in milk production with a production level of 132.4 million tonnes of milk growing steadily at a compound annual growth rate of about 6.5 per cent (Anon. 2013-14). Women play multiple roles in animal husbandry such as feeding, cleaning and milking of dairy animals, care of young animals are done by women in 90 percent of livestock keeping families, while management of male animals and fodder production are managed by men (Rangnekar 1992). Women account for 93 percent of total employment in dairy production (World Bank 1991). Women constitute about 69% of workforce engaged in livestock sector (Anonymous, 2013). India is the world's largest milk producing country with a share of about 16 per cent in world's total milk production. India, the current leader in dairy world, rank 1st in milk production with a production level of 132.4 million tonnes of milk growing steadily at a compound annual growth rate of about 6.5 per cent (Anon. 2013-14).

In fact, the major share of the credit for India's position as largest milk producing country in the world and the significant increase in the per capita availability of milk in the country has to go to the largely illiterate rural women dairy farmers (Patel 1998). Farm women involved in taking decision about the different farm operations, house hold activities efficiently and look after their children and other members of family. The over burdening of house hold domestic work does not allow the farm women to find sufficient time to obtain enough knowledge not only about any particular subject matter but also denies opportunities to obtain necessary information and knowledge about improved farm practices, dairy technology and livestock management.

2. Materials and Methods

2.1. 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.

2.2. 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.

2.3. Selection of the respondents

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

2.4. Tools and techniques of data collection

The data were collected by personal interview technique through a structural schedule. Involvement of farm women in decision making regarding 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.

2.5. 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.

3. Results and Discussion

Personal and Socio-economic Characteristics of the Farm Women

3.1 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. 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 findings confirms the results reported by several other researchers (Upadhyay 2010; Nishi et al. 2011; Patel 2011; Rathod et al. 2011; Tekale 2012; Chayal 2013).

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

Sl. No.	Age group (Mean ± 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

3.2. 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. 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 other workers (Prajapati 2008; Lahoti et al. 2012; Satyanarayan and Jagadeeswary 2009).

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

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

3.3. 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 (Kumar et al. 2013) and supported from the findings reported by other researchers (Kathiriya et al. 2013; Satyanarayan and Jagadeeswary 2009; Raval and Chandawat 2011).

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

Sl. 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

3.4. Annual income

Annual incomes as an independent variable was studied and data were categorized into three groups are presented in table-4. 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 Meti (2013) and supported from the findings reported by Borkakoty (2013).

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

Sl. 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

3.5. Type of family

It refers to two types, nuclear and joint families that have been included in the study. So types of family as an independent variable was studied and data were categorized into two groups are presented in table-5. 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 Gautam et al. 2007 and Raval and Chandawat (2011) and supported by the findings reported by many others (Gangasagare and Karanjkar 2009; Reshma et al. 2014).

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

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

3.6. Size of family

The size of family refers the total number of individuals living together regarding data are given in table-6. 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 other researchers (Upadhyay 2010; Sathyanarayan et al. 2010; Rathod et al. 2012)].

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

Sl. 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

3.7. 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 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. 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 Patel (2013) and support from the findings reported by many others (Bhatt 2006; Rathod et al. 2001; Gangasagare and Karanjkar 2009).

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

Sl. 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

3.8. Occupation

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 remunerative combinations. This finding has been supported by findings of many other researchers (Patel 2005; Sathyarayan et al. 2010; Gangasagare and Karanjkar 2009).

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

Sl. 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

3.9. Social participation

Participation in different social activities definitely influences one's way of thinking, acting and behaving. Keeping this in view, social participation of the respondents was studied and data in this regard are presented in Table-9. 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 cooperative society and in some villages had absence of cooperative dairy. This finding is in line with the findings of Rathod et al. (2001) and Lahoti et al. (2012).

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

Sl. 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

3.10. Experience in dairy farming

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 Tekale (2012) and Patel (2013).

Table 10. Distribution of the farm women according to their experience in dairy farming N=200

Sl. 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

3.11. 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. 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. From 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 Tekale (2012) and support from the findings reported by Sathyanarayan et al. (2010).

Table 11. Distribution of the farm women according to the extent of sources of information used by them N=200

Sl. 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

3.12. Herd size

It refers to the number of milch animals such as cows and buffaloes possessed by the respondents. The data regarding herd size are presented in table-12. 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 many others (Parte 2003; Ashwar 2005; Upadhyay 2010; Rathod et al. 2001; Jaisridhar et al. 2013; Sharma 2014).

Table 12. Distribution of the farm women according to herd size N = 200

Sl. 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

4. Decision making of farm women in dairy farming

Under Indian social system, decision making is said to be a men's affair, however, many a times women are consulted by men before making any important decision, many a times farm women are also required to take certain decision independently. It was therefore, felt necessary to determine the decision making of farm women in dairy farming. The decision making ability of an individual might be influenced by the social, personal and economic characteristics. Therefore, in order to know the extent of participation of farm women in taking decision about different aspects of dairy farming, certain statements were included in the schedule after consulting the experts from animal husbandry and dairy disciplines. The decision making of farm women in dairy farming was measured by computing the decision making score and decision making index as explained in the chapter on methodology. The data were processed accordingly and are presented as below.

4.1. Decision making of the Farm Women in General aspects of Dairy Farming

The data in respect of decision making of the farm women in general aspects of dairy farming are presented in table-4.25. The data from table-4.25 indicate that 84 per cent and 75.50 per cent of the farm women took participation in decision about choosing the type and breed of milch animals, respectively. However, majority of them (71.50 % and 67%) of the farm women did not participate in decision about taking loan for purchase of milch animals and purchase of feed and fodder, respectively. The data further, shows that majority (79 % and 72.50 %) of the farm women participated in taking decision about purchase of improved/cross breed and culling of uneconomic animals, respectively. From above discussion it can be concluded that decisions regarding general aspects of dairy farming were taken jointly with family. Some of women had no awareness about loan facility and not interested. The probable reason might be that Indian society is a male dominant society where women are not fully independent to take decision. The finding of present study was contradicted with findings of Patil et al. (2009) and this finding is similar to the findings of Upadhyay and Desai (2011) and Chauhan (2012).

Table 4.25. Decision making of the farm women in general aspects of dairy farming

Sl.No	Particulars	Taking self-decision	Participation in decision	Not participation in decision	Mean score
A	Choosing animals				
1.	Type of milch animals	08 (04)	168 (84)	24 (12)	1.92
2.	Breed of milch animals	07 (03.50)	151 (75.50)	35 (17.50)	1.87
B	Taking loan				
1.	Purchase of milch animals	02 (01)	55 (27.50)	143 (71.50)	1.29
2.	Purchase of feed/fodder	02 (01)	64 (32)	134 (67)	1.34
C	Purchase and sale of animals				
1.	Purchase of improved/ cross breed	04 (02)	158 (79)	38 (19)	1.83
2.	Culling of uneconomic animals	09 (04.50)	145 (72.50)	46 (23)	1.81

4.2. Decision making of the Farm Women in Feeding of Milch animals

The data regarding decision making of the farm women in feeding of milch animals are presented in table-4.26. It can be observed from the data in table-4.26 that majority of the farm women took decision independently regarding *i.e.* cultivation of green fodder crops (50.50%), green fodders are to be fed or not (79.50 %), quantity of green fodders to be fed or not (79.50 %), preparing concentrate mixture at home (73 %) and colostrum to be fed to the new born calf or not (64 %). However, 89.50 per cent, 86.50 per cent and 86.50 per cent of them did not participate in taking decision about silage or hay making, mineral mixtures are to be fed or not and frequency of feeding minerals, respectively. The results in the table-4.26 shows that women's are predominantly involved in taking decision regarding feeding aspect of milch animals. It was observed in the study area that male members were mainly engaged either in services or other business and male members mainly play role in taking about decision and less participation, hence, in the study area the work regarding livestock management was done by women member only. The finding of present study was similar to the finding of Toppo 2005 and Sarma and Payeng (2012).

4.3. Decision making of the Farm Women in Breeding of Milch animals

The data in respect of decision making of the farm women in breeding of milch animals are presented in table-4.27. Data in the table-4.27 illustrate that majority (76.50% and 52 %) of the farm women participated in taking decision about methods of breeding and bull selection in case of natural service, respectively.

However, 45.50 per cent of them took decision independently regarding adoption of artificial insemination and 34.50 per cent of the farm women took participation in taking decision in this regard. However, 49.50 per cent and 48 per cent of farm women took participation in taking decision regarding pregnancy diagnosis and calling veterinary doctor during parturition, respectively, while 36 per cent and 41 per cent of the farm women took decision independently regarding pregnancy diagnosis and calling veterinary doctor during parturition, respectively. Thus, it can be concluded that majority of the farm women participated in decision making about breeding aspect. This finding is similar to the findings of Upadhyay and Desai 2011 and Sarma and Payeng (2012).

4.4. Decision making of the Farm Women in Management of Milch animals

The data in respect of decision making of the farm women in management of milch animals are presented in table-4.28. The data further indicate that majority of the farm women participated in taking self-decision about weaning of calves (51%), animals are to be kept in open or in shed (61.50 %), shed to be disinfected or not (50 %), number of times animals are to be milked (83 %), time of milking (74 %) and milking method (87.50%), respectively. On the basis of above results it can be concluded that more than half to two third of the farm women participated in taking self-decision regarding breeding and management practices of milch animals. However, majority of the farm women took participation in decision about about shed to be pucca or kutcha (67.50%), number of dairy animals to be kept (75.50%) and flooring of animal shed (78.50%). On the basis of above results it can be concluded that more than two third of the farm women took participation in decision regarding breeding and management

Table 4.26. Decision making of the farm women in feeding of milch animals

Sl. No.	Particulars	Taking self-decision	Participation in decision	Not participation in decision	Mean score
1.	Cultivation of green fodder crops	101 (50.50)	88 (44)	11 (05.50)	2.45
2.	Green fodders are to be fed or not	159 (79.50)	32 (16)	09 (04.50)	2.75
3.	Quantity of green fodders to be fed or not	159 (79.50)	32 (16)	09 (04.50)	2.75
4.	Silage or hay making	00 (0.0)	21 (10.50)	179 (89.50)	1.10
5.	Purchase of roughages	23 (11.50)	134 (67)	43 (21.50)	1.9
6.	Preparing conc. mixture at home	146 (73)	28 (14)	26 (13)	2.6
7.	Purchase of concentrate mixture	23 (11.50)	158 (79)	19 (09.50)	2.02
8.	Mineral mixtures are to be fed or not	7 (03.50)	20 (10)	173 (86.50)	1.17
9.	Frequency of feeding minerals	7 (03.50)	20 (10)	173 (86.50)	1.17
10.	Colostrum to be fed to the new born calf or not	128 (64)	41 (20.50)	31 (15.50)	2.48

Table 4.27. Decision making of the farm women in breeding of milch animals

Sl. No.	Particulars	Taking self-decision	Participation in decision	Not participation in decision	Mean score
1.	Breeding method to be used	34 (17)	153 (76.50)	13 (06.50)	2.10
2.	Adoption of Artificial Insemination	91 (45.50)	69 (34.50)	40 (20)	2.25
3.	Bull selection in case of Natural Service	55 (27.50)	104 (52)	41 (20.50)	2.07
4.	Pregnancy Diagnosis	72 (36)	99 (49.50)	29 (14.50)	2.21
5.	Calling veterinary doctor during reproductive disorders	82 (41)	96 (48)	22 (11)	2.3

practices of milch animals. The probable reason might be that women's role were dominant in livestock sector in the study area and also availability of veterinary facility in nearby areas. This finding is similar to the findings of Sarma and Payeng (2012) and Singh and Srivastava S (2012).

4.5. Decision making of the Farm Women in Sale of Milk and Preparation of Milk Products

The data regarding decision making of the farm women in sale of milk and preparation of milk products are presented in table-4.29. The data from the table-4.29 reveal that majority of the farm women took participation in decision about fixing the selling rate of milk (73%) and taking

decision about customers / dairy societies for the sale of milk (70.00 %). Further, it can be seen from the data that majority of the farm women independently decided about preparation of milk products viz. curd (94.50 %), butter(94.50 %), butter milk (76 %) and ghee (76%), respectively. It can also be noticed from the data in the table-4.29 that majority of the farm women took participation in decision regarding utilization of amount obtained from dairy farming i.e. development of dairy farming (89.50%), meeting family needs (89.50%) and other purpose (89.50%). However, majority of farm women taking self-decision regarding milk to be used for home consumption should be 88.50 per cent. The result clearly indicates that taking decision regarding preparation of milk products was the total affair of the farmwomen, while

Table 4.28. Decision making of the farm women in management of milch animals

Sl. No.	Particulars	Taking self-decision	Participation in decision	Not participation in decision	Mean score
1.	Weaning of calves	102 (51)	77 (38.50)	21 (10.50)	2.40
2.	Animals are to be kept open or in shed	123 (61.50)	43 (21.50)	34 (17)	2.44
3.	Shed to be pucca or kutccha	44 (22)	135 (67.50)	21 (10.50)	2.11
4.	Number of dairy animals to be kept	19 (09.50)	151 (75.50)	30 (15)	1.94
5.	Shed to be disinfected or not	100 (50)	83 (41.50)	17 (08.50)	2.41
6.	Number of times animals are to be milked	166 (83)	20 (10)	14 (07)	2.76
7.	Time of milking	148 (74)	39 (19.50)	13 (06.50)	2.67
8.	Flooring of animal shed	28 (14)	157 (78.50)	15 (07.50)	2.065
9.	Milking method	175 (87.50)	11 (05.50)	14 (07)	2.80

Table 4.29. Decision making of the farm women in sale of milk and preparation of milk products

Sl. No	Particulars	Taking self-decision	Participation in decision	Not participation in decision	Mean score
A	Sale of milk				
1.	Selling rate of milk	19 (09.50)	146 (73)	35 (17.50)	1.92
2.	Customers/dairy societies for sale of milk	33 (16.50)	140 (70)	27 (13.50)	2.03
B	Preparation of milk products				
1.	Curd	189 (94.50)	11 (5.50)	00 (0.0)	2.94
2.	Butter milk	189 (94.50)	11 (5.50)	00 (0.0)	2.94
3.	Ghee	152 (76)	48 (24)	00 (0.0)	2.76
4.	Butter	152 (76)	48 (24)	00 (0.0)	2.76
C	Utilization of amount obtained from dairy farming				
1.	Development of dairy farming	08 (04)	179 (89.50)	13 (06.50)	1.97
2.	Meeting family needs	08 (04)	179 (89.50)	13 (06.50)	1.97
3.	Other purpose	08 (04)	179 (89.50)	13 (06.50)	1.97
D	Miscellaneous				
1.	Milk to be used for home consumption	177 (88.50)	23 (11.50)	00 (0.0)	2.88

decisions regarding other economic aspects were mostly dealt by men in consultation with the farm women. The probable reason could be that product making from milk is an activity in which the women alone is usually involved, since these activities are considered the day to day routine work of farm women. The finding of present study was contradicted with findings of Upadhyay and Desai (2011) and Chauhan (2012).

4.6. Decision making of the Farm Women in Health care of Milch animals

The data regarding decision making of the farm women in health care of milch animals are presented in table-4.30.

Table 4.30. Decision making of the farm women in health care of milch animals

Sl. No	Particulars	Taking self-decision	Participation in decision	Not participation in decision	Mean score
1.	Vaccination to be done or not	29 (14.50)	108 (54)	63 (31.50)	1.83
2.	Treatment of sick animals to be done or not	58 (29)	122 (61)	20 (10)	2.19
3.	Deworming schedule to be followed or not	19 (09.50)	45 (22.50)	136 (68)	1.41
4.	Calling veterinary doctor during reproductive disorders or not	67 (33.50)	118 (59)	15 (07.50)	2.26

4.7. Decision making Index in Different aspects of Farm Women in Dairy Farming

The data were further processed to determine the aspects of dairy farming in which farm women were participating in taking decision to greater or lesser extent by calculating decision making index. The data are given in table-4.31. The data from the table-4.31 indicated that overall decision making of farm women about various dairy aspects was 70.48 per cent. Their decision making about the aspect of milk and milk products (80.57%) and management (80.11%), breeding (72.97 %) and feeding (68 %) was considerably large. As regards decision making in respect of general aspects of dairy farming was only 55.94 per cent. This clearly reveals that the farm women had maximum participation in decision making about dairy farming. These means important decisions about dairy farming were taken by men and women jointly.

Table 4.31. Decision making of the farm women in different aspects of animal husbandry and dairy practices

Sl. No.	Particular about the aspects	Decision making index
1.	General	55.94
2.	Feeding	68.00
3.	Breeding	72.97
4.	Management	80.11
5.	Milk and milk products	80.57
6.	Health care	64.12
7.	Overall decision making	70.48

The data further indicate that majority of the farm women participated in taking decision about giving vaccination(54 %), treatment of sick animals to be done or not (61 %) and calling veterinary doctor during reproductive disorders or not (59 %), respectively. Majority (68 %) of farm women did not participate in taking decision regarding deworming schedule to be followed or not of milch animals. On the basis of above results it can be concluded that more than half of the farm women participated in taking decision regarding management practices of milch animals. The finding of present study was contradicted with findings of Upadhyay and Desai (2011) and Singh and Srivastava (2012).

4.8. Overall Decision making of Farm Women in Dairy Farming

In the present study an attempt were also made to categories the farm women on the basis of decision making index to know their level of participation in decision making. The data in this respect are presented in table-4.32. It can be noticed from the data in the table-4.32 that nearly three fourth (73%) of the farm women had a medium decision making about dairy farming. However, equal percentage of the farm women (15 % and 12 %) had higher and lower participation in making decision about dairy farming, respectively. This clearly shows that most of the farm women had medium level of making decision about dairy farming. In dairy farming many decisions requires participation of male might be the possible explanation for this type of results.

Table 4.32. Distribution of the farm women according to their level of decision making in dairy farming N = 200

Sl.No.	Participation in decision making (Mean \pm S.D.)	Frequency	Percentage
1.	Low (below 53.48)	24	12
2.	Medium (between 53.48 to 72.40)	146	73
3.	High (above 72.40)	30	15
	Total	200	100

4.9. Relation between personal and socio-economic characteristics of farm women and their decision making in dairy farming

Coefficient of correlation was worked out to find out relationship between the independent (personal and socio-economic characteristics of farm women) and dependent variable (extent of decision making). The data regarding this are given in table-4.33.

5. Age and decision making

Age is one of the important traits of an individual linked with one's maturity and experience in mental and physical participation in particular activity. It was hypothesized that farm women in the higher age group might less in taking decision about dairy farming. Above table-4.33 supported this assumption showing negatively correlated and highly significant relationship between age of the farm women and their decision making in dairy farming. From above discussion it can be concluded that decision making of the farm women in dairy farming was influenced by their age. The probable reason could be that old age farm women take less decision making. The finding of present study was contradicted with findings of Toppo (2005).

5.1. Education and decision making

Education develops personality of an individual and brings about mental development. The people who had high educational level, acquire more knowledge and more susceptible to changes tending to accept new ideas more quickly. It was therefore, hypothesized that, more educated farm women might more in taking decision in dairy farming. The above table-4.33 strongly supported this assumption showing a positive correlation and highly significant relationship between education of the farm women and their participation in decision making about dairy farming. This indicates that decision making of the farm women was influenced by their education. The probable reason could be that educated women are more prompt in taking decision quickly and effectively on any matter than illiterate women. The finding of present study was similar to findings of Toppo (2005).

5.2. Caste and decision making

The presentation of data in table-4.33 makes it clear that there was negatively correlated and highly significant relationship between the caste category of the farm women and their decision making in dairy farming. Because of lower category women have marginal or small holder lands and herd size, thus less participation and less involvement in decision making regarding animal husbandry practices.

5.3. Annual income and decision making

The presentation of data in table-4.33 makes it clear that there was positively correlated and highly significant relationship between the income of the farm women and their decision making in dairy farming. Because of higher income women have higher decision taking ability regarding animal husbandry practices.

5.4. Type of the family and decision making

The presentation of data in table-4.33 makes it clear that there was positively correlated and non-significant relationship between the family type of the farm women and their decision making in dairy farming. It shows that no relationship between family type and decision making.

5.5. Size of family and decision making

The data presented in the table-4.33 indicates that there was a positive and non-significant association between size of the family and decision making of the farm women in dairy farming. This indicates that participation in decision making about dairying was influenced by their family size. This may be due to the fact that all family members were involved in making decision about dairy enterprise which enables them to take any decision about dairy farming. The finding of present study was similar to findings of Toppo (2005).

Table 4.33. Relationship between personal and socio-economic characteristics of the farm women and their decision making in dairy farming

Sl. No.	Personal and socio-economic characteristics	Decision making in dairy farming
1.	Age	-0.352**
2.	Education	0.697**
3.	Caste	-0.497**
4.	Annual income	0.441**
5.	Type of family	0.126 ^{NS}
6.	Size of the family	0.078 ^{NS}
7.	Size of land holding	0.194**
8.	Occupation	0.036 ^{NS}
9.	Social participation	-0.002 ^{NS}
10.	Experience in dairy farming	-0.371**
11.	Information sources	0.403**
12.	Herd size	0.084 ^{NS}

** Denotes highly significant relationship

5.6. Land holding and decision making

The association between size of land holdings and decision making of the farm women in dairy farming presented in the table-4.33 shows that there was a positive correlation and highly significant relationship between size of land holding and decision making of the farm women. This indicates that decision making of farm women in dairy farming was influenced by land holding. It was hypothesized that as larger the land holdings of farm women had more concentration on allied activity for their livelihood. The finding of present study was similar to findings of of Toppo (2005).

5.7. Occupation and decision making

The presentation of data in table-4.33 makes it clear that there was positively correlated and non-significant relationship between the occupation of the farm women and their decision making in dairy farming. It shows that involvement of women in agriculture animal husbandry activities influences their decision making ability in dairy farming.

5.8. Social participation and decision making

Data in table-4.33 supported this assumption that there was positive and non-significant association between social participation and decision making of the farm women in dairy farming. Because of less involvement of women in social participation like milk and other co-operative society

influences their decision making ability. The finding of present study was contradicted with findings of of Toppo (2005).

5.9. Experience and decision making

Highly experienced people acquire more knowledge and skill, can bring more perfection in any kind of work. Being more matured, they exhibit balanced thinking and firmness in their decision making. Table-4.33 shows negative correlation and highly significant relationship between experience of the farm women and their participation in making decision about dairy farming. This means that participation of the farm women in decision making was influenced by their experience in dairying. Thus, it can be concluded that, more the years of experience of farm women in dairying, they less involved in making decision about dairy farming. The finding of present study was similar to findings of of Toppo (2005).

5.10. Information sources and decision making

It was thought that more use of sources of information by the farm women help them in increasing their taking decision in dairy farming. Use of more number of sources of information would bring more clarity and balanced thinking about the decision to be taken on any aspect. Above table-4.33 shows a positive and highly significant relationship between the use of sources of information by the farm women and their decision making in dairy farming. This means that use of sources of information had bearing on the farm women in decision making. The finding of present study was contradicted with findings of of Toppo (2005).

5.11. Herd size and decision making

The data from table-4.33 shows positive correlation and non-significant relationship which indicates that farm women in decision making about dairy farming was not influenced by size of livestock. The finding of present study was similar to findings of Toppo (2005). Thus, it is clear from table-4.33 that age, education, category, annual income, land holding, experience in dairy farming and source of information were highly significantly correlated with decision making of the farm women in dairy farming. Type of family, size of family, occupation, social participation and herd size were found to be non-significant with decision making of the farm women in dairy farming. Therefore, the null hypothesis that there is no association between size of family, information sources and herd size with decision making of the farm women in dairy farming.

Conclusion

Majority of the farm women had higher level of involvement in decision making regarding feeding, management, milking and milk products but in case of general aspects and health care, farm women involvement should be medium level in dairy farming. It was observed that the work regarding feeding, management, milking and milk products was mainly done by female members and they were available at home for maximum time might be the probable reason for this type of result. The result clearly indicates that taking decision regarding preparation of milk products was the total affair of the farm women, while decisions regarding other economic aspects were mostly dealt by men in consultation with the farm women. The probable reason could be that product making from milk is an activity in which the women alone is usually involved, since these activities are considered the day to day routine work of farm women. Thus, involvement of women in agriculture animal husbandry activities influences their decision making ability in dairy farming.

References

- Ahuja V, Mc Connell KE, Deininger DU, Haan CD (2003). Are the poor willing to pay for livestock services? Evidence from rural India. *Ind J Agril Economics* 58(1): 84-89
- Anonymous. (2013-14). Economic survey. Agriculture and Food Management, Chapter 8. Ministry of Finance. GoI, New Delhi
- Ashwar BK (2005). Determinants of attitude and adoption of improved animal husbandry practices of dairy farmers of North Gujarat. Ph.D. Thesis (Unpublished). Sardarkrushinagar Dantiwada Agril Univ, Sardarkrushinagar
- Bhatt PM (2006). Effect of mass media exposure on dairy farmers regarding animal husbandry practices. Ph.D. (Agri.) thesis. Anand Agril Univ, Anand
- Borkakoty J (2013). Involvement of women in agricultural and allied operations: A case study in Golaghat district, Assam, India. *Int J Basic Sciences Social Sci* 2 (2): 139-144
- Chauhan NM (2012). Involvement of tribal farm women in decision making. *Indian Research J Extension Edu* 2: 172-174
- Chayal K, Dhaka BL, Poonia MK, Tyagi SVS, Verma SR (2013). Involvement of farm women in decision-making in agriculture. *Studies on Home and Community Sci* 7 (1): 35-37
- Gangasagare PT, Karanjkar LM (2009). Status of milk Production and economic profile of dairy farmers in the Marathwada region of Maharashtra. *Veterinary World* 2(8): 317-320
- Gautam US, Chand R, Singh DK (2007). Socio-personal correlation for decision making and adoption of dairy practices. *Ind Res J Extension Edu* 7(2&3): 10-11
- Jaisridhar P, Sankhala G, Kadian KS, Kumar S, Sangeetha S (2013). Factors determining adoption of scientific dairy farming with special reference to farmers call centre of Tamil Nadu. *Pak J Agril Sci* 50(4): 549-553
- Kathiriya JB, Damasia DM, Kabaria BB (2013). Role of rural women in dairy farming of Rajkot district. *Tamil Nadu J Vet Animal Sci* 9 (4): 239-247.
- Kumar V, Prajapati RS, Ghintala A, Singh K (2013). Source and channels of agriculture information used by the beneficiary farmers of NAIP-III. *Gujarat J Extension Edu* 24: 35-38
- Lahoti SR, Chole SR, Rathi NS (2012). Role of women in dairy farming. *Ind J Dairy Sci* 65(5): 442-446
- Meti SK (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
- Nishi A, Sah K, Ram K (2011). Dairy farmers' satisfaction with dairy cooperative societies: a case study. *Ind Res J Extension Edu* 11(1): 74-78
- Parte L (2003). Participation of women members in dairy co-operative societies of Anand district. M.Sc. (Ag.) Thesis (Unpublished). Gujarat Agril Univ, Anand
- Patel A (1998). Women and white revolution. *Cooperative Dialogue* 8(1): 20-25
- Patel BS (2005). A study of peasantry modernization in integrated tribal development project area of Dahod district of Gujarat state. Ph.D. Thesis, Anand Agril Univ, Anand
- Patel KL (2013). Entrepreneurial behaviour of dairy farm women in Banaskantha district of North Gujarat. M.V.Sc. Thesis (Unpublished). Sardarkrushinagar Dantiwada Agril Univ, Sardarkrushinagar.
- Patel KS (2011). Privatization of extension services as perceived by the farmers, researchers and extension workers of North Gujarat. Ph.D. Thesis (Unpublished). Sardarkrushinagar Dantiwada Agril Univ, Sardarkrushinagar
- Patil AP, Gawande SH, Nande MP, Gobade MR (2009). Constraints faced by the dairy farmers in Nagpur district while adopting animal management practices. *Veterinary World* 2(3): 111-112

- Prajapati RR (2008). Indigenous resources management by tribal farm women in Banaskantha district of Gujarat state. Ph.D. Thesis (Unpublished). Sardarkrushinagar Dantiwada Agril Univ, Sardarkrushinagar.
- Rangnekar SD (1992). Women in livestock production in rural India. In Proceedings of 6th AAAP animal science congress, 23-28 November, Bangkok, Thailand.
- Rathod P, Nikam TR, Sariput L, Amit H (2012). Farmer's perception towards livestock extension service: a case study. *Ind Res J Extension Education* 2 (Special Issue): 1-5
- Rathod PK, Landge S, Nikam TR, Vajreshwari S (2011). Socio-personal profile and constraints of dairy farmers. *Karnataka J Agril Sci* 24 (4): 619-621
- Raval RJ, Chandawat MS (2011). Extent of knowledge of improved animal husbandry practices and socio-economical characteristics of dairy farmers of district Kheda, Gujarat. *Int J Farm Sci* 1(2): 129-137
- Reshma A, Bheemappa A, Natikar KV, Biradar N, Mundinamani SM, Havaldar YN (2014). Entrepreneurial characteristics and decision making behaviour of farm women in livestock production activities. *Karnataka J Agri Sci* 27(2): 173-176.
- Sarma J, Payeng S (2012). Women dairy farmers and decision making pattern in Sonitpur district of Assam. *Ind J Hill Farming* 25(1): 58-62
- Sathyanarayan K, Jagadeeswary V, Chandrashekhar MV, Wilfred RS, Sudha G (2010). Socio-economic status of livestock farmers of Narasapura village - A Benchmark Analysis *Vet World* 3(5): 215-218
- Satyanarayan K, Jagadeeswary V (2009). A study on knowledge and adoption behaviour of livestock farmers. *Ind J Animal Res* 44(2): 100-106
- Sharma GRK (2014). Capacity building: correlates of change in attitude among dairy farm women. *International Journal of Science Environmental Technology* 3(3): 1083-1089
- Singh B, Srivastava S (2012). Decision making profile of women of Ummednagar village of Jodhpur district. *Ind Res Extension Education* 1: 235-237
- Tekale VS (2012). Participation of rural women in decision making process in agriculture. *Int J Extension Edu* 8: 56-62.
- Toppo A (2005). A study of participation and decision making of farm women in dairy occupation. M. Sc. (Agri.) Thesis (Unpublished). Anand Agril Univ, Anand.
- Upadhyay S (2010). Participation of dairy farm women in animal husbandry occupation. M.Sc. (Agri.) Thesis (Unpublished). Anand Agril Univ, Anand
- Upadhyay S, Desai CP (2011). Participation of farm women in animal husbandry in Anand district of Gujarat. *J Community Mobilization and Sustainable Dev* 6(2): 117-121
- World Bank (1991). A World Bank country report, Gender and poverty in India, World Bank Washington D.C.