

*Review Article***Contribution and Issues of Women in Livestock Sector of India: A Review****Kuldeep Dudi¹, Indu Devi* and Raj Kumar**ICAR-Central Sheep and Wool Research Institute, Avikanagar, Malpura (Tonk), Rajasthan,
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Abstract

Livestock sector is an integral component of rural farmers livelihoods and it is largely taken care by women. Most of the animal husbandry activities like fodder collection, feeding, watering, health care, general management, compost making, milking, household-level processing and value addition are performed by women. Although women play an important role in livestock sector, but their contribution in livestock rearing has not been given due place and their share in income from livestock is considered negligible. Gender disparity regarding wages also exist. Efforts are needed to correct gender biasness, increase the capacity of women to meet their strategic needs and to document systematically their inputs and outputs. Women have less access to technology, extension services, less women farmer's organizations, hence they should be promoted to participate in outside exposure activities like marketing, selling and purchasing of animals. Seven important pillars of women empowerment are: decision making, access to knowledge, self-esteem, credit facility, livestock services, social support, market accessibility and asset ownership. Trainings should be organised for women farmers to remove their knowledge gaps regarding specific animal husbandry activities.

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India is a developing country where agriculture provides more than 50% of total employment needs (Economic survey, 2018). Livestock sector is an integral component for rural livelihoods and contribution of livestock in total agriculture sector and country's GDP is 25.8% and 4.6% respectively (BAHS, 2018). Women make notable contribution to food production field especially in horticulture and small ruminants' production (FAO, 1997; Arshad *et al.*, 2010). Women constitute 48.53 % of Indian population with 64.63%

literacy rate against that of men relishing 80.88% and so 16.25% lesser than those of men (Population Census, 2011; Central Statistics Office Report, 2018). Women contributes about 40% of agricultural force in developing countries, 50% in East and Southeast Asia and 30% in India (FAO, 2011). Women are contributing more than two-third of the workforce in agricultural sector as share of women in total agricultural worker's strength is 70%, 80% in house food producers and 10% in processing of basic foodstuffs workers (www.wikigender.org). In fact, animal husbandry is becoming feminized and dairying in our country is mainly overlooked by female as they are having command over this enterprise (Jadav *et al.*, 2014). Around 75 million women as against 15 million men are engaged in dairying in India (Thakur and Chander, 2006). Despite the pivotal role of women in livestock farming, they have not got a satisfactory place in earnings from livestock. They always find as invisible workers (Chayal *et al.*, 2009) and significant gender inequalities do exist in access to technologies, credit, information, inputs and services due to various reasons. This paper presents an overview about roles of women in livestock sector and constraints faced by them.

Contribution of Women in Livestock Management Activities

Women are heavily engaged in the livestock allied activities but the exact contribution in terms of magnitude is difficult to assess and shows a high degree of variation across countries. In India, women contribute 32% of their time to agricultural activities (Singh and Sengupta, 2009) and constitute about 69% of workforce engaged in livestock sector (Patel, 2016). This data varies within-country as it is recorded less than 10% for West Bengal and more than 40% for Rajasthan women (Jain, 1996). Younger women contribute a higher share of the total time provided in agriculture in comparison to older women. For Rajasthan this figure was found 60% for 14-19 age group girls. India is currently producing highest milk (176.30 MT) in the world and per capita availability has been reached to 375 gm/day (BAHS, 2018), this significant change has involved large number of rural women dairy farmer's hard work (Patel, 1998). Their contribution for livestock management is as below-

Feeding Management

In hilly areas they collect and transport fodder from far places. Women have good knowledge about local feed resources and are able to identify beneficial grasses, weeds and fodder trees for feeding their animals. Young girls are also involved in the grazing of small ruminants (Lo, 2007). The time spent by women was found maximum for collection of fodder (254.68 hr/year) and bringing of fodder (132.07 hr/year), because cutting and collecting activity was performed only fortnightly and the amount of fodder required for the cattle was brought twice a week (Kishtwaria *et al.*, 2009). A study in Karnataka revealed that 86.66 % of women were involved in feeding of animals, 85% involved in watering of animals and 82.5% were involved in grazing of animals (Rathod *et al.*, 2011). Kathiriya *et al.* (2013) conducted a study in Gujrat involving

240 rural women farmers and found that 80.83% women involved in fodder collection, 75% in chaffing of fodder, 86.66% in feeding of animals, 77.50% in storage of feed/fodder and 85% in watering of animals.

Table 1: Gender wise contribution to feeding management (Mishra *et al.*, 2008)

Activities	Exclusive Females (%)	Exclusive Males (%)	Both (%)
Collection of fodder from fields, community land	88	0	13
Procurement of feed and fodder from market	17	70	13
Feeding of animals	79	8	13
Watering of animals	38	52	11
Grazing of animals	8	79	13

These all studies have highlighted and documented women role in different aspects of feeding management of animals and they consider it as their obvious task.

General Management

Women typically spend about 294.34 minutes daily in different dairy farm activities like feeding, watering, milking, housing, breeding, animal health care and marketing (Thirunavukkarasu and Christy, 2002). Women perform and contribute significantly to all the activities related to general management of livestock like cleaning of animals and their sheds, milking, preparing the dung cake and findings of different studies has mentioned below.

Table 2: Contribution of women according to various studies

Activity	Percentage Contribution
Construction of animal sheds (Toppo <i>et al.</i> , 2004 and Rathod <i>et al.</i> , 2011)	75.83%
Care of new born calf (Chayal <i>et al.</i> , 2009; Kathiriya <i>et al.</i> , 2013; Kaur, 2015)	100%; 89.16%; 65.30%
Washing and grooming of animals (Kathiriya <i>et al.</i> , 2013)	70.83%
Cleaning of utensils (Chayal <i>et al.</i> , 2009)	100%
Cleaning of shed (Chayal <i>et al.</i> , 2009, Rathod <i>et al.</i> , 2011; Kathiriya <i>et al.</i> , 2013)	100%; 89.16%; 89.16%
Disposal of cow dung (Rathod <i>et al.</i> , 2011; Kathiriya <i>et al.</i> , 2013)	86.66%; 86.66%
Compost making (Lahoti <i>et al.</i> , 2012)	73.33%
Milking of animals ((Lahoti <i>et al.</i> , 2012; Rathod <i>et al.</i> , 2011; Kathiriya <i>et al.</i> , 2013)	70.00%; 90%; 90%
Pregnancy diagnosis (Kathiriya <i>et al.</i> , 2013)	90.83%
Weaning and management of calf (Lahoti <i>et al.</i> , 2012)	66.66%
Maintaining farm & dairy records (Rathod <i>et al.</i> , 2011)	52.50%

Average time spent by farm women in various dairy activities was found 1779 hours/year for women and 315 hours/year for men ((Vir Singh and Tulachan, 2001). Farm women are involved in all types of livestock

activities such as fodder collection (94.7 %), cleaning and care of animals (94.7 %), cleaning animal shed (96 %), dung collection (93.3 %), disposing of dung (93.3%) and milking (90 %) and various types of musculoskeletal disorders (MSDs) has also seen in farm women and maximum farmwomen (55.3 %) reported back pain (Singh, 2017) while performing livestock activities.

Health and Breeding Management

Activities like care of sick animals, care during pregnancy and traditional health care are mainly performed by women. However, activities related to going outside the house are mainly managed by men.

Table 3: Involvement of women in health and breeding of animals (Mishra *et al.*, 2008)

Activities	Exclusive Females	Exclusive Males	Both
Traditional health care to animals	67.00%	21.00%	13.00%
Vaccination and visits to animal hospital	0	100%	0
Breeding of animals	0	100%	0

Another study in Punjab reported that about 98.6% rural women were involved in health care of pregnant animals, 55.30% involved in deworming, 52% were taking animals for treatment (52.0%) and 30.60% were involved in vaccination (Kaur, 2015).

Processing and Marketing

The rural women participate in processing activities more than marketing related such as selling of milk, making value addition products from milk, purchase and sale of animals. For Rajasthan, it is reported that on an average woman work for 9.4 hours a day, 3.8 hours are engaged in domestic work, 1.5 hours in tending animals and 4.1 hours in spinning (Social Assessment Report, 2010). Mishra *et al.* (2008) found that percent involvement of women in sale and breeding of animals was null but Kaur (2015) reported that only 64.60% women took up processing on small scale only like conversion of milk into milk products for household consumption and 74% women were involved in milk selling activities. The participation of women was found least in financial related activities like farm record maintenance (52.5%) and getting loans or credits from the banks (49.16 %) (Kathiriya *et al.*, 2013) because in rural areas these activities are considered as men's venture.

Constraints Faced by Women Farmers in Livestock Farming

Less Access to Resources

Women has less access to resources like land, water, credit funds, technology, less asset ownership, less awareness to extension services, less information about market trends, prices (Patel *et al.*, 2016).

Gender Disparity

Gender-biasness can be due to a paternalistic thinking, the attitudes of the women themselves and women are conditioned by social culture to underestimate the worth of their work (Niamir, 1994). Gender disparities can also be realized through following points-

Differences in Wages

Women play a key role in both livestock management and household activities besides farming activities but their work is considered as non-productive and unorganized. Although, women are more than ever finally employed, differences in wages earned by women and men persist in all countries. Women's average salary per day for agricultural activities was reported to be lesser than men (Rs. 101.24.95 v/s 168.83 in rural areas and Rs.160.35 v/s 438.14 in urban areas) (NSSO, 2012). MGNREGA has attracted largely women; the participation of women is 83.3% but doesn't impart skills at all and here also gets biased for average casual wages/day (Rs. 101.50 v/s Rs 68.90) (NSSO, 2010).

Social and Mobility Issues

There is serious lack in freedom to go alone and attend any gram sabhas in rural areas. This attitude hinders women participation in village awareness camps being organised by agencies therefore lacking in technical knowledge about A.H. activities. A study reported only 15% women attend frequently extension services and training and 44% women never got access to attend such services (Parveen, 2008). Therefore, women farmers have less opportunity to interact with extension services providing agencies, especially in rural areas where male-female contact is culturally restricted and extension men agents often try to interact with men farmers due to their erroneous assumption that the message will trickle "across" to women (Mehra and Rojas, 2008). Social or religious restrictions prevent women from travelling freely and limited mobility is a noticeable constraint for women to get involved in extension activities (FAO, 2000).

Limited Decision-Making Freedom

As mentioned in below table, except storage of green fodder decision for all other activities are mainly made by men although majority of workings are handled by women. Women generally use traditional methods of livestock rearing and less aware about new technology because of difficulties in access, cultural restrictions on use and women's and livestock has remained as less research priorities (Mehra and Rojas, 2008). Women have limited freedom to exercise their decision-making powers in dairy farming due to unequal power relations within the household and the community.

Table 4: Participation of women and men in market related activities (Mishra *et al.*, 2008)

Activities	Women (%)	Men (%)	Both (%)
Selection of breed of animals	33	67	0
Storage of green fodder for lean period	88	8	4
Selling of surplus dry fodder	29	63	8
Procurement of dry fodder from market	4	93	6
Selling of green fodder in market	45	47	8
Selling of livestock	13	82	6
Selling of milk	47	43	10

Women have less access to marketing agents, less contact with progressive farmers, officials and banks, less women farmer's organizations, hence they are not confident in decision taking related with marketing issues (Upadhyay and Desai, 2011). In other words, women face more difficulties than men for access of extension services, marketing opportunities and financial services as well as in exercising their decision-making powers (Patel *et al.*, 2016). Decision making behaviour of women in dairy activities is least in economic activities like taking loans, purchase and sale of animals and choosing animals for dairy. Because of traditional patriarchal type Indian culture, the decision regarding economics aspects has been dominated by men.

Time Related Constraints

Females allocate more than double time than men in animal husbandry activities but faces various constraints for approaching financial issues. Actually, women face far greater time constraints than men and always juggle due to gender-based division of their working hours into child care, household responsibilities and unpaid work of livestock farm (Mehra and Rojas, 2008).

Problems Encountered by Rural Women in Livestock Rearing

Majority of women (>80%) felt the economic problems were of foremost importance due to high cost of quality milch animals, animal's feed, byre construction and high rate of labour charges (Kathiriya *et al.*, 2014). They found that 70.00% women respondents considered poor quality fodder as main causing factor for lower milk, wool and meat yields from animals. Although these problems are not gender specific, but can be resolved up to some extent by educating and improving socio-economic profile of rural families by engaging them in other allied activities through SHGs and cooperative services etc.

Table 5: Important problem faced by women in different areas (Kathiriya *et al.*, 2014)

S. No.	Problems Faced by the Respondents	Percentage
1	Economic problems due to high cost of milch animals, feed, labour, interest on loan, byre construction	82.13%
2	Supply problem due to difficulty in getting pure breed, medical aids, quality fodder, high cost of available cattle	77.50%
3	Marketing problem due to unavailability of cold storage, transportation facilities from village to co-operative society, less price of milk, high cost of milk products preparation	52.00%
4	Other miscellaneous problem like lack of awareness about scientific knowledge of dairy management, silage preparation, feed fodder and health management, lack of A.I & medical facilities and infrastructure in villages, lack of interest in animal keeping	74.66%

Health Related Risk for Women Engaged in Livestock Farming

They perform all un-mechanized agricultural tasks and perform multiple tasks, which add more burden to them. While performing various activities of livestock husbandry, women workers are prone to musculoskeletal disorders like backpain, shoulder pain, leg pain (reported in 50.00% women) due to heavy workload and awkward posture, (Nayak *et al.*, 2013). Singh (2017) reported that fodder collection most commonly affect head (35.2 %), shoulder (30.9 %) and Lumbar (27.5 %); milking caused discomfort in hands (30.4 %) and wrist (27.4 %); cleaning of shed and animal affected lumbar (12.7 %), wrist (11.3 %) and hands (11.3 %); collection and disposal of dung caused pain and discomfort in shoulders (15.7%) and lumbar (16.4 %). Bending, overloading and poor postures are main risk factors for discomfort and posture related disorders among farm women farmers (Singh, 2017). Female workers are having more health risk in livestock farming activities as compared to men (Tripathi *et al.*, 2017). So, women should be trained about correct postures, use of technical help for heavy load works in livestock farming.

Training Needs of Women to Remove Technological Knowledge Gaps Concerning Livestock

Training helps in the systematic improvement of knowledge and skills of trainees which in turn helps them to function effectively and efficiently (Sajeev *et al.*, 2012). Considering women's involvement in a wide range of activities it is evident that their production potentials can be improved only if women get the necessary training related to technical knowhow of livestock production. Many extension programmes are being designed especially for training of women beneficiaries (Parthasarathy *et al.*, 2006). Madivanane (1990) found that training need for maintenance of cattle shed was found having second rank among livestock keepers' women. Fulzele and Meena (1995) observed that most of women farmers need expressed highest need for feeding of pregnant animal, balanced feeding and clean water for drinking. Almost 100% farm women need training in purchase of animals, maintenance of cattle shed and processing of milk

(Sumathi and Alagesan, 2001). Yadav *et al.* (2007) found that women need training the most in maintenance of cattle shed (80%), deworming (76%), clean milk production (76 %), balanced diet of animals (68%). In another study, rural women expressed their training need in decreasing order of animal health and disease control precautions, milk production, animal hygiene and management, common diseases of milking animals, vaccination schedule and preparation of silage (Nikhade *et al.*, 2005 and Kathiriya *et al.*, 2010). They also needed training in castration of calf, care at calving, proper design of cattle shed and construction of scientific low-cost cattle shed (Fulzele and Meena, 1995; Durgga and Subhadra, 2009). Farm women also found interested in knowing breeding aspects, control and identification of important diseases (Das and Mishra, 2002; Gupta and Tripathi, 2002 and Durgga and Subhadra, 2009). Kathiriya *et al.* (2014) studied training needs felt by most of the women farmers (n=150) from five villages of Gujarat for dairy farming and have been given in Table 6.

Table 6: Training needs of women in dairy farming (Kathiriya *et al.*, 2014)

S. No.	Animal Husbandry Practices	Most Needed Training Needs (%)	Rank
1	Animal health and disease control precautions	92	1 st
2	Animal milk production	88	2 nd
3	Animal hygiene and management	85.33	3 rd
4	Common diseases of milking animals	83.33	4 th
5	Feeding of livestock during pregnancy	78.67	5 th
6	Treatment of roughages	76.67	6 th
7	Preparation of silage	75.67	7 th
8	Preparation of balanced diet	73.33	8 th
9	Importance of record keeping	74	9 th
10	Preparation of hay	68	10 th
11	Animal breeding and care	62.67	11 th
12	Using chaff cutter for cutting fodder	57.33	12 th
13	Production of good quality fodder	50	13 th
14	Feeding and care of newly born calves	48.67	14 th
15	Feeding and care of improved breed of buffaloes	44.67	15 th
16	Animal care and management	39.33	16 th
17	Feeding of animals	31.33	17 th
18	Preparation of milk products	28	18 th
19	Milk selling	22	19 th
20	Milk marketing	18.67	20 th

Since the major farm operations of breeding, health care, marketing and finance require outside contact and the involvement of farm women is less in these activities which can be the reason for the least preferred areas of training by women (Singh *et al.*, 2001 and Sreehari *et al.*, 2012). The high cost of concentrates forced the women farmers to know and learn the mixing of locally available ingredients to make balanced feed for animals which in turn would reduce the feed cost (Durgga and Subhadra, 2009). Raju *et al.* (1999) found April to June was most preferred time by women for training purpose. The findings of various studies

clearly indicate that to improve skill knowledge, abilities, income profile of rural women, training is essential.

Empowerment of Women through Cooperative Organizations

Micro-finance is a recognized tool for poverty reduction and improving the socio-economic status of rural poor farmers (Dhakal and Nepal, 2016). Micro-finance in the form of Self-Help Groups (SHG) and cooperatives etc. can certainly help women in rural areas, some studies have shown that economic empowerment of women through dairy cooperatives is possible. Namratha and Kiran (2017) found medium level of women participation in milk cooperative activities in Karnataka and found that majority of the respondents (96.67%) participated in animal health camp, 60% participated in vaccination, 85% in supplying of fodder seeds, 88.33% in supplying fodder roots, 81.67% in supplying mineral mixture and 66.67% in straw treatment demonstration. Hence, involvement of women to the cooperative's activities can be further increased by increasing their education level.

Rewani *et al.* (2017) studied the structure and functioning of livestock-based Women Self Help Groups (WSHGs) in Ranchi district of Jharkhand and found members of all groups utilizing funds efficiently in a rotation manner to meet their small credit requirements and regularly maintaining records and accounts. Half of the members had selected pig rearing, one third goat rearing and remaining 16.67% had selected cattle rearing as their income generating activity. Singh *et al.* (2018) carried out a study on 120 randomly selected Women Dairy Cooperative Society (WDCS) members in Rajasthan and found that there was no change in land holdings of the respondent households but considerable increase in their home appliances and vehicles after WDCS membership. About 30.83% member households had converted their kutcha houses to semi pucca or pucca houses while 38.33% member households had constructed pucca sheds for their animals after becoming the WDCS members.

General Recommendation

As the demand for livestock products is continuously increasing throughout the world which eventually increasing scope and opportunities for empowerment of women through dairy farming (Taneja, 2013). If removal of gender biasness/disparity in livestock sector, veterinary allied field, research, change in attitude of extension functionaries and extension service delivery systems occur, then the efficiency and impact of women-oriented livestock development programs will certainly increase. Seven important pillars of women empowerment can be: decision making, access to knowledge, self-esteem, credit facility, livestock services, social support, market accessibility and asset ownership. Following are the important suggestions to make women farmers as effective livestock entrepreneurs-

- a) There is a need of extensive study to document the role of women in livestock husbandry and household organization.

- b) Women must be facilitated to adopt and establish livestock rearing/production as their important profession and commercial enterprise to generate more income from it.
- c) Women societies, cooperatives, SHGs and organizations should be started which can help in their building for improving their contribution in livestock sector economically.
- d) To improve their decision making and women empowerment women education level, livestock/land ownership, credit facilities, women's participation in social gatherings like 'kisan gosthi', 'village chaupal' etc. should be encouraged.
- e) Trainings must be arranged especially for women at community level after assessing their specific training needs through female extension workers extensively and their impact analysis must be done.

Conclusion

Women play a significant role in Indian livestock sector's economy but lacks in technical knowledge. It is generally said that poverty has a woman's face. If a woman becomes empowered than economic, social and nutritional condition of that household certainly improves. Extensive study is required to be carried out to understand constraints for women farmers and explore possibilities of empowering women in different parts of India. Considering the participation and lack in knowledge about livestock sector, if women is empowered than this will certainly contribute in doubling farmer's income and prosperity.

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