



## Involvement of Women in Agriculture and Livestock Activities in Arid Region of Rajasthan, India

Bhagwan Singh\* and Soma Srivastava

ICAR-Central Arid Zone Research Institute, Jodhpur 342 003, India

Received: December 2016

**Abstract:** The present study was conducted in *Ummalnagar* village of tehsil (Administrative unit) Mandor of Jodhpur district. The village was selected purposively under the transfer of technology program supported by CAZRI, Jodhpur. Data were collected from a sample of 50 farm women on activities related to agricultural production, livestock related activities, domestic works and role in decision making. Study revealed that there was a clear differentiation among activities performed by male and female members individually besides overlapping in few activities which they performed jointly. Regarding agricultural activities like field preparation bunding and clearing weeds, harvesting and transport of harvest, majority considered them as joint work. However in case of weeding (72.22%), threshing (52.78%) and winnowing (77.77%) females were more involved in these operations and involvement of male members was very less (16-33%). In case of livestock activities except health care (13.88%) and marketing of produce (6.66%) women were always involved in all the other activities like fodder collection, drying, feeding, cleaning, milking, processing milk etc. Regarding different household works the contribution of women was very high (91.67-100%) except marketing for household provisions which was primarily done by the male members (58.33%) or jointly (41.66%). Regarding decision making in livestock, it is evident from the data that most of the decisions about breeding (66.66%), feeding (83.33%) as well as management of cattle were taken jointly (85.33%). In case of health parameters activities like consultation, vaccination and control of parasites were taken care by their male counterparts. In case of farm credit, investment of added profit and adoption of innovative technologies, the male counterparts dominated and participation of female members was very low or negligible.

**Key words:** Decision making, livestock, household, agricultural activities, arid.

Women are the pivots around which the family, the society and the whole community moves. Rural women are important segment of the village society by virtue of their numbers and hours they spent in performing multifarious activities at home, farm and upkeep of cattle. They lead difficult life and spend maximum time doing tiring and arduous tasks. Studies also report that (Gabriel, 1991; Tekale, 2012) women generally perform farm activities which are time and labour intensive, monotonous, and more drudgery prone. Women's participation in various farm and non-farm activities varies widely across the regions according to different farming systems and socio-economic status of the families. Farming and animal husbandry are the major work domain beside the domestic works where their participation may range as high as 100%. Since all household, agricultural

and livestock activities are done manually, they cause considerable physical and mental fatigue to the women.

Women have been playing crucial role not only in agriculture but in allied activities such as various non-farm operations, livestock and domestic activities. Though they participated in all sorts of activities, their role in decision making was generally as supportive only (Chaudhary and Singh, 2003; Okorji, 1991). The pattern of decision making profile of women varies across the regions. Thus, the identification of role of woman in agriculture and livestock activities and the decision making process of various farm and nonfarm activities is very important. Keeping this in view the present study was undertaken to assess the involvement of farm women in agriculture and livestock activities *vis-à-vis* decision making process of farm women in related activities.

\*E-mail: singhbhagwan776@gmail.com

## Research Methodology

The present study was conducted in Ummednagar village of tehsil (administrative unit) Mandore of Jodhpur district which falls in the arid zone of western Rajasthan. Most of the basic community facilities were available in the village except in some scattered settlements where drinking water supplied by public health engineering department was not available. The area was, by and large, single cropped with few irrigated wells where rabi (winter season) crops are grown to a limited extent e.g. wheat, mustard, cumin and few vegetables like cabbage, onion, garlic and carrot. The village was selected purposively under the transfer of technology program supported by ICAR-CAZRI, Jodhpur. Stratified random sampling technique was used to select 50 farm families representing different caste and land holding category and from different clusters (settlements). Data were collected through a specially designed

interview schedule as developed by Puri (1972) and Acharya and Benett (1982) with some necessary modifications.

## Results and Discussion

Women as agriculturist perform right from the sowing of the crop to its ultimate utilization either as food, feed or raw material for rural industry. Thus, the data was collected and analyzed based on three major categories of operations viz., agricultural, livestock and domestic activities in which participation of women is greatest and results are presented and discussed accordingly as under.

### *Socio-economic profile of the farm women*

Particulars of sample population like age, education, caste, settlement pattern are presented in Table 1. Majority of farm women were middle aged (31-50 years), illiterate, belonged to OBC category, lived in joint family with more than 5 members, had low

Table 1. Socio-economic characteristics of farm women

Socio-economic characteristics	Category	Frequency	Percentage
Age	Below 30 years	13	25.00
	31 to 50 years	32	61.54
	Above 50 years	7	13.46
Education	Illiterate	25	48.07
	Literate up to Middle	20	38.46
	Secondary to Sr. Secondary	5	9.62
	Graduate and above	2	3.85
Caste	General	15	28.85
	OBC	28	53.85
	SC/ST	9	17.30
Land holding	Below 22 bigha	15	28.85
	23 to 44 bigha	24	46.15
	Above 44 bigha	13	25.00
Family type	Single	22	42.31
	Joint	30	57.69
Family members	Small family (1 to 4 members)	7	13.46
	Small family (5 to 7 members)	34	65.38
	Small family (above 7 members)	11	21.15
	5 to 8 above 8		
Farming experience	Below 8 years	14	6.92
	9 to 15 years	31	59.62
	Above 16 years	7	13.46
Mass media exposure	Low (below 4 score)	39	75.00
	Medium (5 to 8 score)	12	23.08
	High (above 8 score)	1	1.92

mass media exposure, medium land holdings and with more than 15 years of experience in farming.

#### *Participation of women in agricultural activities*

According to fifth economic census (EC) in 2005, the number of persons engaged in agricultural activities in Rajasthan was 4, 41, 315 (Mathur, 2008). The provisional census data from Directorate of Economics and Statistics for district Jodhpur states that the total number of male and female involved in agricultural works are 39.40 and 69.40%, respectively which indicates almost double participation of females in agriculture (Khinchi, 2001). Additionally, as agricultural labour, 6.54% participation for males and 16.53% for females has been reported in provisional census data of Jodhpur district which again highlights the high per cent participation of females as agricultural laborers.

Data presented in Table 2 reflects participation in different agricultural activities on gender basis. There was a clear differentiation among works performed individually and jointly by women and men. In case of agricultural activities like harvesting (57.69%), transport harvest (63.46%), threshing (51.92), transport of produce (63.46%) and storage of produce (80.77%) majority considered them as jointly performed activities. However, in case of weeding (53.85%), and winnowing (76.92%)

females were more involved in these operations and involvement of male members was less (17-19%). The data further inferred that operations such as field preparation (71.15%), ploughing (100%), sowing (88.46%), fertilizer application (90.38%), pesticide application (96.15%), transport FYM (88.46%), watch and ward of field (51.92%) and marketing (84.61%) were performed primarily by the male members and the contribution of female members was very less or they were never involved in these activities (Table 2).

#### *Participation of women in livestock activities*

Animal husbandry is a major domain in which participation of rural women is seen very high. Researchers have indicated that most drudgery-ridden tasks in this domain are collecting and bringing fodder, milking, cleaning shed, feeding animals and processing milk. In case of livestock activities except health care (13.88%) and marketing of produce (6.66%) women were always involved in all the other activities like fodder collection (66.66%), feeding (77.78%), cleaning shed (91.67%), milking (97.22%), processing milk (97.22%) etc. Results revealed that women accounted for higher participation than men in different livestock activities (Table 3). Sharma and Khandelwal (2002) also reported 100% participation in fodder collection and cleaning of animal shed followed by feed arrangement (96.66%), water management (93.33%), care and management of animals at different stages and milking of

Table 2. Role of women in agricultural activities

Activities	Women	Men	Jointly
Field preparation	7 (13.46)	37 (71.15)	8 (15.39)
Ploughing	-	52 (100.00)	-
Sowing	1 (1.92)	46 (88.46)	5 (9.62)
Weeding	28 (53.85)	9 (17.30)	28.85
Fertilizer application	2 (3.85)	47 (90.38)	3 (5.77)
Pesticide application	-	50 (96.15)	2 (3.85)
Transport FYM	2 (3.85)	46 (88.46)	4 (7.69)
Watch and ward of field	14 (26.93)	27 (51.92)	11 (21.15)
Harvesting	13 (25.00)	9 (17.31)	30 (57.69)
Threshing	17 (32.70)	8 (15.38)	27 (51.92)
Winnowing	40 (76.92)	10 (19.23)	2 (3.85)
Transport of produce	3 (5.77)	16 (30.77)	33 (63.46)
Storage of produce	6 (11.54)	4 (7.69)	42 (80.77)
Marketing for agricultural inputs	3 (5.77)	44 (84.61)	5 (9.62)

\* Figures in parenthesis indicates percentages.

Table 3. Role of women in livestock activities

Activities	Women (%)	Men (%)	Jointly (%)
Collection of fodder	34 (65.38)	14 (26.92)	4 (7.70)
Bathing animals	40 (76.92)	7 (13.46)	5 (9.61)
Feeding	40 (76.92)	6 (11.54)	6 (11.54)
Milking	42 (80.77)	4 (7.70)	6 (11.54)
Grazing	41 (78.84)	3 (5.77)	8 (15.38)
Milk processing	50 (96.15)	2 (3.84)	-
Deliver milk at center	9 (17.31)	16 (30.77)	27 (51.92)
Dung cakes	52 (100.00)	-	-
Health of animals	7 (13.46)	45 (86.54)	-
Cleaning shed	45 (86.54)	4 (7.70)	3 (5.77)
Marketing	3 (5.77)	49 (94.23)	-

\* Figures in parenthesis indicates percentages.

animals (91.66%). Sankhala and Sharma (2001) found that least important role performed by farm women in marketing and healthcare of animals. Goyal *et al.* (2005) also reported that in most of the animal husbandry related tasks women participation was predominant.

#### Participation of women in domestic activities

Women were solely responsible for all the activities related to care of family and children, showing clearly that domestic or household works are more or less a female prerogative (Table 4). In case of different domestic works, the contribution of women was very high (91.67-100%) except marketing for household provisions which was either done by the male members (58.33%) or jointly (41.66%). Majority of women participated in household activities like fuel wood collection (94.44%), fetching water (91.67%), cleaning house (100%), cooking (100%), child care (88.88%) and washing clothes etc. (91.67%) with a very less contribution of the male members of the family towards these activities.

Table 4. Role of women in household/domestic activities

Activities	Women (%)	Men (%)	Jointly (%)
Fuel wood collection	49 (94.23)	3 (5.77)	-
Fetching water	47 (90.38)	5 (9.62)	-
Cleaning house	52 (100.00)	-	-
Cooking	52 (100.00)	-	-
Carry food to farm	48 (92.31)	4 (7.69)	-
Child care	39 (84.62)	8 (15.38)	5 (9.61)
Washing clothes	47 (90.38)	5 (9.62)	-
Buy household provisions	5 (9.62)	29 (55.77)	18 (34.61)

\* Figures in parenthesis indicates percentages.

### Participation of Women in Decision Making

#### Decision making in livestock activities

Most of the decisions about breeding, feeding as well as management of cattle were taken jointly (Table 5). In case of breeding decision related to number of cattle (66.67%) were taken jointly whereas decisions related to breed of cattle (77.78%) and artificial insemination of cattle (69.44%) were taken by male members. With regards to feeding, type and quantity of feed (50.00%) and storage of fodder (83.33%), they were decided jointly. In case of management aspect of dairy animals the observed response clearly indicates that decisions related to type of house (83.33%), flooring of animal shed (50.00%) were taken jointly whereas method of milking (66.67%) was dominantly decided by female members. The finding was also supported by the study of Upadhyaya and Intodia (2007) wherein it was indicated that decisions related to health of cattle and vaccination (86.11%) and consultation

Table 5. Participation in decision making in livestock activities

Activities	Jointly	Male only	Females only
Rearing and breeding cattle			
No. of cattle	34 (65.38)	14 (26.92)	4 (7.70)
Breed of cattle	9 (17.31)	40 (76.92)	3 (5.77)
AI of cattle	10 (19.23)	36 (69.23)	6 (11.54)
Feeding			
Type and quantity of feed	26 (50.00)	8 (15.38)	18 (34.62)
Quantity of concentrate	14 (26.92)	9 (17.31)	29 (55.77)
Storage of fodder	43 (82.69)	1 (1.92)	8 (15.38)
Health			
Vaccination	6 (11.54)	46 (88.46)	-
Consulting veterinary doctor	3 (5.77)	49 (94.23)	-
Control of external parasite	17 (32.69)	13 (25.00)	22 (42.31)
Management			
Type of house	42 (80.77)	3 (5.77)	7 (13.46)
Flooring of animal shed	25 (48.08)	3 (5.77)	24 (46.15)
Milking	15 (28.85)	1 (1.92)	36 (69.23)

\* Figures in parenthesis indicates percentages.

with veterinary doctor (94.44%) were taken by male members which may be due to lack of knowledge and less exposure of females within the village society for these aspects.

Other studies (Raj and Kishore, 1991; Upadhyaya and Intodia, 2007; Kaur and Raj, 2008) also indicated that female had active participation in decision related to feeding and management of cattle but played less active role in decisions related to breeding, health, marketing of produce etc. Katiyar *et al.* (2008) also reported less involvement of women in marketing and breeding related decisions.

#### Participation in decision making in household activities

In case of household activities it was observed majority of the decisions regarding clothing (66.67%), education of children

(72.22%), marriage of children (100%), construction/repair of house (69.44%), purchase of household appliances (55.55%) etc were taken jointly (Table 6). Regarding decisions related to medical care of family, it was observed that in 50% of cases the decisions were taken primarily by male members, and in another half with joint consensus of both. The choice for the food for family and decisions related to meal preparation were dominated by females (80.55%). According to Kumari, 2002; Upadhyaya and Intodia, 2007 also decisions related to food and clothing were taken by women.

#### Decision with respect to agriculture and livestock related activities

In case of miscellaneous activities like farm credit, it was observed that the source of borrow (72.22%) was chosen by male members whereas

Table 6. Participation in decision making in household activities

Activities	Jointly	Male only	Females only
Food for family	17 (32.69)	3 (5.77)	32 (61.54)
Clothing	34 (65.38)	8 (15.38)	10 (19.23)
Education of family	37 (71.15)	13 (25.00)	2 (3.85)
Medical care	14 (26.92)	30 (57.69)	6 (11.38)
Marriage of children	47 (90.38)	3 (5.77)	2 (3.85)
Construction/repair of house	33 (63.46)	15 (28.85)	4 (7.69)
Purchase of household appliances	28 (53.85)	24 (46.15)	-

\* Figures in parenthesis indicates percentages.

Table 7. Participation in decision making in miscellaneous activities

Activities	Jointly	Male only	Females only
Farm credit			
Source of burrow	14 (26.92)	38 (73.08)	-
Amount of borrowing	37 (71.15)	15 (28.85)	-
Investment of added profit			-
On farm goods	8 (15.38)	44 (84.62)	-
On house hold goods	32 (61.54)	12 (23.07)	8 (15.38)
Adoption of innovation			-
High yielding varieties	6 (11.54)	46 (88.46)	-
Fertilizer	9 (17.31)	43 (82.69)	-
Insecticides/pesticides	2 (3.85)	50 (96.15)	-

\* Figures in parenthesis indicates percentages.

the amount to be borrowed (75.00%) was decided jointly. Regarding investment of added profit and adoption of innovation like, high yielding varieties (86.11%), fertilizer (91.66%), insecticide/pesticide (97.22%), the decisions were taken primarily by male members (Table 7). Raj and Kishore (1991) also indicated that for adoption of agriculture innovations farmers took advice of their wives also.

## Conclusion

On the basis of findings, it could be concluded that most of the activities related to agriculture, livestock and domestic works, women participation was reported to be predominant. In household activities, the decisions related to purchase of goods and construction etc. were male dominated rest of the activities like food, clothing, marriage and education were done by female members. However, no or less participation of women was recorded in financial activities like marketing, selling of produce and allied activities owing to lack of knowledge. Most of the decisions related to livestock, household and allied activities were taken jointly. But, the decisions related to selection of breed and health care practices were male dominated due to their technical competence. The study suggests that technical inputs need to be given to women in areas that elicited their low participation owing to lack knowledge. The training of rural women is very important, especially with the adoption of modern agricultural techniques that are tailored to local conditions and that use natural resources in a sustainable manner.

## References

- Acharya, M. and Bennett, H. 1982. Women and subsistence sector; economic participation and household decision making in Nepal. *World Bank Staff Working Paper No 526*, Washington DC, USA.
- Chaudhary, H. and Singh, S. 2003. Farm women in agricultural operations. *Agricultural Extension Review*. Jan-Feb, pp. 21.
- Gabriel, T. 1991. *The Human Factor in Rural Development*. Belhaven Press, Landon.
- Goyal, G. Randhawa, V., Kaur, V. Pannu, K. and Kur, R. 2005. Participation of small and marginal women farmers in animal husbandry. *Rajasthan Journal of Extension Education* 12-13: 9-14.
- Katiyar, Smita, Acharya, G.P. and Tripathi, S.N. 2008. Role of farm women in decision making concerning farm and home activities. *Rajasthan Journal of Extension Education* 16: 195-198.
- Kaur, P. and Raj, A. 2008. decision making pattern of farm women in dairy farming. *Rajasthan Journal of Extension Education* 16: 53-56.
- Khinchi, N.L. 2001. *Jila Sankhyikiya ruprekha: Jila Jodhpur*. Aarthik evam sankhyikiya Nideshalaya, Jaipur, Rajasthan.
- Kumari, A. 2002. Role of rural women in decision making in house hold activities in Bihar. *Maharashtra Journal of Extension Education* 21(I): 67-70.
- Mathur, Y. 2008. Statistical Abstracts: Rajasthan. Directorate of Economics & Statistics, Jaipur, Rajasthan.
- Okorji, E.C. 1991. A comparative study of the role of women in traditional and modern organizations in Nigeria. In *Women in Nigerian Economy (M.O. Ijere)*. Enugu, Nigeria, Acena Publishers.
- Puri, S. 1972. Work roles and decision making pattern of farm wives and husbands. *Ph.D. Thesis IARI*, New Delhi.

- Raj, M.J. and Kishore, D. 1991. Participatory behaviour of farm women in irrigated agriculture. *Journal of Indian Water Resources Society* 11(2): 9-14.
- Sankhala, G. and Sharma, B.M. 2001. Role performance of farm women in agriculture and dairy husbandry; analysis. *Rajasthan Journal of Extension Education* 8&9: 10-13.
- Sharma, K.C. and Khandelwal, S. 2002. Role of farm women in animal management. *Rajasthan Journal of Extension Education* 10: 126-129.
- Tekale, V.S. 2012. Participation of rural women in decision making process in agriculture. *International Journal of Extension Education* 8: 56-62.
- Upadhya, M. and Intodia, L. 2007. Involvement of women dairy cooperative society members in decision making process. *Rajasthan Journal of Extension Education* 15: 97-101.

