

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

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**Abstract:** The present study was conducted in *Ummednagar* village of tehsil (Administrative unit) *Mandor* of Jodhpur district. The village was selected purposively under the transfer of technology programme 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 works performed by male and female members individually, whereas, overlapping in few activities which they perform jointly. Regarding agricultural activities like field preparation bunding and clearing weeds harvesting and transport harvest majority considered them as working jointly. However in case of weeding (72.22%), threshing (52.78%) and winnowing (77.77%) females were always 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 household provisions the decisions were dominated by female members. In case of farm credit, investment of added profit and adoption of innovative technologies the role of male counterparts was 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 the important segment of the village society both by their numbers and hours they spent in performing multifarious activities at home, farm and looking after cattle. They lead difficult lives and spend maximum time doing tiring and arduous tasks. Studies also report that (Gavriel, 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 except 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. However they do participate in all sorts of activities their participation in decision making observed generally as supportive only (Chaudhary *et al.*, 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 of involvement of farm women in agriculture and livestock activities vis-à-vis decision making process of farm women in related activities.

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## 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 connected. 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 programme supported by CAZRI, Jodhpur. Stratified random sampling technique was used to select the 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; Benett (1982) with some necessary modifications.

## Results and Discussion

Women as agriculturist tend to look at performing in their totality from the sowing of the crop to its ultimate utilization either as food, feed or raw material or 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), were illiterate, belonged to OBC category, living in joint family

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

with more than 5 members, had low mass media exposure, medium land holdings with more than 15 years of experience in farming.

#### *Participation of women in Agricultural Activities*

The economic census of India estimate state wise number of agricultural and non-agricultural workers in India, which has been further bifurcated in actual number and percentage of males and females engaged in these activities. According to fifth economic census (E.C.) in 2005, the number of persons engaged in agricultural activities in Rajasthan is 4, 41,315 (Mathur Y, 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 percent, respectively which indicates almost double participation of females in agriculture (Khinchi, 2001). If we see the data regarding percent participation of males and females as agricultural labour 6.54% participation for males and 16.53% for females has been reported laborers engaged in provisional census data of jodhpur district which again highlight the higher percent participation of females as agricultural laborers. These reports highlight the higher participation of women in various agricultural activities rather than men.

Data presented in Table 2 reflected gendered participation in different agricultural activities.

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 always 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 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%),

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 & 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

milking (97.22%), processing milk (97.22%) etc . The percentage wise participation of women in various livestock activities has been presented in Table 3. It is evident from the table that women accounted for higher percent participation than men in different livestock activities. Sharma & Khandelwal (2002) also reported 100 percent 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 animals (91.66%). Sankhala & Sharma (2000-2001) found that least important role performed by farm women in marketing and healthcare of animals. Goyal *et. al* (2004-05) also reported that in most of the animal husbandry related tasks women participation was predominant.

#### Participation of women in Domestic activities

Data presented in Table 4 indicated that in majority of cases 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. In case of different domestic 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%). 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.

#### Participation of women in decision making

##### Decision making in livestock activities

It is evident from the data presented in Table 5 that most of the decisions about breeding, feeding as well as management of cattle were taken jointly. In case of breeding decision related to no. of cattle (66.67%) were taken jointly whereas decisions related to breed of cattle (77.78%) and AI of cattle (69.44%) were taken by male members. With regard to

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

Table 6. Participation in decision making in livestock activities

Activities	Jointly	Male only	Females only
<b>Rearing &amp; breeding cattle</b>			
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)
<b>Feeding</b>			
Type & 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)
<b>Health</b>			
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)
<b>Management</b>			
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

feeding, type and quantity of feed (50.00%) and storage of fodder (83.33%) 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) indicated that decisions related to health of cattle & vaccination (86.11%) and consultation 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.

Study of (Raj & Kishore 1991; Upadhyaya & Intodia, 2007; Kaur and Singh, 2008) also

indicated that female had active participation in decision related to feeding and management of cattle which play less active role in decisions related to breeding, health, marketing of produce etc. Study of Katiyar et al. (2008) also supported the findings and 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 by spouse (Table 6). Regarding decisions related

Table 7. 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 (3.58)
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 8. Participation in decision making in miscellaneous activities

Activities	Jointly	Male only	Females only
Farm credit			
Source of borrow	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

to medical care of family it was observed that in 50 percent of cases the decisions were taken primarily by male members, and in another half with joint concern 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 & Intodia, 2007 decisions related to food and clothing were taken by women.

#### *Decision related to agriculture and livestock 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 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 in diffusion and adoption of agriculture innovations farmers took advice by 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. However, no participation or lesser was recorded in financial activities like marketing, selling of produce and allied activities owing to lack of knowledge which was considered primarily as male dominated activities. Most of the decisions related to

livestock, household and allied activities were taken jointly by female members and their male counterpart at whole. However, the decisions related to selection of breed and health care practices were male dominated due to their technical knowledge. 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 was done by female members. Their counterpart male members mostly took decisions that require technical competence. The study suggests that technical inputs need to be given 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.

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