

RESEARCH ARTICLE**An Assessment of Gender's Extent of Participation in Pig rearing Activities of Assam****Pallabi Bora¹, Prashant Mishra², Utpal Braman³ and Pallabi Das⁴**

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pallabi.bora@aau.ac.in**ABSTRACT**

Livestock has traditionally been an integral part of the tribal farming community of Assam and pig rearing is a common practice in every tribal household where both men and women are equally a part of it. Although women have notable contributions in all the critical pig rearing activities, yet they are not being properly acknowledged. The present study was conducted in four tribal dominated districts of Assam with an objective to analyze the gender's degree of participation in pig farming. Through multi-stage random sampling technique, a total of 320 respondents including an equal number of men and women farmers were selected. The participation of the respondents in pig farming activities was studied in seven domains i.e. activities related to housing, feeding, breed selection, health care, pregnant sow and piglets care, boar care and general care and management practices. The data were analyzed using appropriate statistical techniques and the findings indicated that above fifty five percent of the women farmers had medium participation followed by high (24.38%) and (20.00%) low extent of participation. A medium participation (58.12%) was observed in men farmers followed by high (21.88%) and low (20.00%) extent of participation. It was also observed that among the seven pig rearing practices, five activities showed significant differences between women and men i.e., housing, feeding, breed selection, care to pregnant sow and general care practices of pig rearing while in case of other two activities, it showed that there were no significant differences between women and men in pig rearing practices.

Key words: Pig rearing; Tribal; Gender; Participation. Assam.

The international development community has recognized agriculture as an engine of growth and poverty reduction and with that Livestock also plays a very important role in Indian economy. According to (Channappa et al. 2022), it has been reported that about 20.5 million people depend upon livestock for their livelihood and livestock contributed 16 per cent to the income of small farm households as against an average of 14 per cent for all rural households. Rural people can earn an additional income by involving in allied activities, thereby, contributing a significant improvement in their quality of lives (Anusha et al. 2022). Piggery sector provides livelihood to two-third of rural community and employment to about 8.8 per cent of the population in India (Anonymous, 2017).

India has vast livestock resources. It contributes 25.6 per cent of total Agriculture GDP (Ali and Neka,

2011). In North Eastern region of India there is a constant increasing demand for animal protein and majority of the people are non-vegetarian and among them a good number of people consume pork. Pig rearing is one of the profitable activities in the rural economy of this region providing extra aid to small-scale farmers including marginal and landless farm women.

NE Region of India alone is the home to 38.42 per cent of the total pig population where Assam possesses the highest 1.63 million (15.89%) of the total 10.29 million pig population of India (Twentieth Livestock Census, 2019). Pig rearing is a common practice in almost all tribal households and found pork as a better source of meat (Johari and Saharia, 2017). Both tribal men and women are more and less involved in almost all kinds of piggery activities. Women of the North East

are inseparable, vital component for their contribution and enhancing livelihood security through piggery-based farming activities (Seeralan *et al.* 2012). Apart from other roles, tribal women are extensively involved in pig farming and are directly involved in most of the operations relating to feeding, breeding, management, and health care of the animals. In general, women played a decisive role related to livestock activities besides other household responsibilities. (Moser, 2007) and (Gautam *et al.* 2012). Despite of their significant contributions, women are still considered as the invisible segment of the farming community. Gangadhar (2020) reported that although women play a vital role in pig-rearing activities but their roles are overlooked. Keeping in view of the above facts, an attempt was made to ascertain the gender's degree of participation in this agricultural component.

METHODOLOGY

The present study was conducted in four districts of Assam i.e. Jorhat, Morigaon, Baksa and Dhemaji based on the presence of highest concentration of tribal population having pig farming as an activity. One block from each district was selected purposively and from each block, two tribal dominated villages engaged in piggery activities were included randomly. Twenty tribal households from each village engaged in pig farming were considered. Finally, two members from each household that comprised both husband and wife were included, thus, a total of 320 numbers of respondents were finalized for the study. The data were collected with the help of a research schedule during June, 2022 through personal interview method. The participation of the respondents in the activities related to pig farming were studied in seven domains i.e. activities related to housing, feeding, selection of breed, health care, care of pregnant sow and piglets, boar care and lastly general care and management practices. The responses were collected in frequency and percentage in three-point continuum of "Active participation", "Partial participation", and "No participation" with a score of 3, 2 and 1 respectively. Then the overall extent of participation of both men and women in pig farming was calculated to gain an understanding of low, medium, or high level of participation. Further analysis was done to determine whether there existed any difference in pig rearing practices between two population mean i.e. between men and women. For this, as the sample size was large, a two sample Z- tests was performed

indicating their mean scores and sample variances. The Z calculated value was compared with Z table value (two tailed ± 1.96) which reflected the significance at 5 % probability level. Thus, statistical techniques viz., frequency, percentage, Mean, Standard deviation and two sample Z test relevant to the objective of the study were used.

RESULTS AND DISCUSSION

Both genders are more and less involved in almost all kinds of piggery activities. Therefore, an attempt was made to ascertain their degree of participation and the idea could be visible from the results depicted in the following table 1 which would give a detailed understanding of practice wise extent of participation of tribal women and men farmers in pig farming.

Activities related to housing: The table 1 depicted that majority of women (76.87%) and men (71.87%) did not participate in the construction of pig houses, only a few women (3.75%) and men (14.38%) had active participation in it. This was because they did not practice well organized housing system and usually kept the pigs in open or temporary spaces surrounded by bamboo fences. However, more than fifty percent of women had active participation in the cleaning of pig living area (57.50%) and in feeding through arrangement (54.37%) by women and it was supported by (Chauhan, 2011). While (43.75%) men were found to be actively involved in feeding trough arrangement.

Activities related to feeding: It can be revealed from Table 1 that majority (73.12%) of the women farmers actively participated in cooking of feed, followed by (66.87%) of them who were involved in giving feed. This might be due to their maximum presence in home doing all household chores along with productive tasks. While, sixty five percent of men farmers were seen to be active in feed purchase and collection of feed (64.37%). The possible reason might be that men were taking care of all the outside activities to lessen the burden of women. On being asked, it was known that the tribal farmers in the sampled area usually followed backyard scavenging system or open rearing. But that was not sufficient to meet the hunger of pigs. So, they collected Colocasia and purchased leftover food from hotels and these tasks were mostly done by men. The finding is in line with the finding of (Nijuki *et al.* 2010), (Chauhan, 2011), (Chauhan, 2012) and (Krishna *et al.* 2022) where it was mentioned that women participated more in feeding and maintain

cleanliness of pigs and men were seen to take part in marketing and medication of pigs.

Activities related to selection of breed: The observations from the Table 1 showed that most of the farm women did not have participation in breed purchase (73.75%) and in selection of breed (51.88%). But (29.37%) of women had active participations in breed selection and only a few (16.875) actively involved in purchase of breed. While majority of men farmers had active

participation in purchase of breed (65.63%), followed by breed selection (56.25%). The probable reason for more men's active involvement in this activity might be because women had lesser ideas about selection of suitable breed and women might have less bargaining power in the purchase of breeds. This finding contradicted with the findings of (Tudu, 2015) who reported that most of the tribal farm women played a predominant role in selection and purchasing of breed.

Table 1. Distribution of respondents according to their participation in pig farming (N=160+160=320)

Activities	Active p-articipation No. (%)		Partial Participation No. (%)		No Participation No. (%)	
	Women	Men	Women	Men	Women	Men
<i>Activities related to housing</i>						
Construction or maintenance of pig house	6 (3.75)	23 (14.38)	31 (19.38)	22 (13.75)	123 (76.87)	115 (71.87)
Collection of Pig house materials	18 (11.25)	16 (10.00)	24 (15.00)	22 (13.75)	118 (73.75)	122 (76.25)
Arrangement of feeding/water	87 (54.37)	70 (43.75)	28 (17.50)	30 (18.75)	45 (28.13)	60 (37.50)
Cleaning of pig living area	92 (57.50)	55 (34.38)	23 (14.37)	26 (16.25)	45 (28.13)	79 (49.37)
<i>Activities related to feeding</i>						
Collection of feed	51 (31.88)	103 (64.37)	26 (16.25)	18 (11.25)	83 (51.88)	39 (24.37)
Cooking of feed	117 (73.12)	21 (13.13)	17 (10.63)	26 (16.25)	26 (16.25)	113 (70.62)
Providing feed	107 (66.87)	28 (17.50)	26 (16.25)	29 (18.13)	27 (16.87)	103 (64.38)
Purchase of feed	47 (29.37)	104 (65.00)	18 (11.25)	17 (10.63)	95 (59.38)	39 (24.37)
<i>Activities related to selection of breed</i>						
Selection of suitable breed	47 (29.37)	90 (56.25)	30 (18.75)	31 (19.38)	83 (51.88)	39 (24.37)
Purchase of breed	27 (16.87)	105 (65.63)	15 (9.38)	16 (10.00)	118 (73.75)	39 (24.37)
<i>Activities related to health care</i>						
Disease identification	33 (20.63)	42 (26.25)	65 (40.63)	67 (41.87)	62 (38.75)	51 (31.87)
Consultation with vet. doctors/experts	19 (11.87)	25 (15.63)	61 (38.12)	57 (35.63)	80 (50.00)	78 (48.75)
Bringing medicines	19 (11.87)	20 (12.50)	66 (41.25)	67 (41.88)	75 (46.87)	73 (45.63)
Giving medicines/antibiotics	66 (41.25)	17 (10.63)	56 (35.00)	65 (40.62)	38 (23.75)	78 (48.75)
<i>Activities related to care of pregnant sow and piglets</i>						
Cleaning and disinfecting naval cord	70 (43.75)	57 (35.63)	58 (36.25)	65 (40.63)	32 (20.00)	38 (23.75)
Cutting of needle teeth	68 (42.50)	71 (44.38)	57 (35.63)	51 (31.88)	35 (21.88)	38 (23.75)
Help in sucking	107 (66.88)	30 (18.75)	24 (15.00)	27 (16.88)	29 (18.13)	103 (64.38)
Taking piglets for castration	29 (18.13)	90 (56.25)	30 (18.75)	31 (19.38)	101(63.13)	39 (24.38)
Special care to pregnant sow	105 (65.63)	35 (21.88)	25 (15.63)	31 (19.38)	30 (18.75)	94 (58.75)
Attending the farrowing	67 (41.88)	64 (40.00)	57 (35.63)	58 (36.25)	36 (22.50)	38 (23.75)
Post farrowing care	103 (64.38)	39 (24.38)	26 (16.25)	29 (18.13)	31 (19.38)	92 (57.50)
<i>Activities related to care of boar</i>						
Maintenance of boar pen	28 (17.50)	8 (5.00)	13 (8.13)	10 (6.25)	119 (74.38)	142 (88.75)
Scrubbing and cleaning of boar	27 (16.88)	11 (6.88)	12 (7.50)	9 (5.63)	121 (75.63)	140 (87.50)
Trimming of boar feet	8 (5.00)	28 (17.50)	11 (6.88)	12 (7.50)	141 (88.13)	120 (75.00)
<i>Activities related to general care and management practices of pigs</i>						
Checking weight	47 (29.38)	85 (53.12)	21 (13.12)	20 (12.50)	92 (57.50)	55 (34.38)
Regular inspection	101 (63.12)	37 (23.12)	27 (16.88)	30 (18.75)	32 (20.00)	93 (58.13)
Record keeping of farm	20 (12.50)	7 (4.37)	12 (7.50)	11 (6.88)	128 (80.00)	142 (88.75)
Slaughtering	0 (0.00)	32 (20.00)	0 (0.00)	0 (0.00)	160 (100.00)	128 (80.00)
Sale of adult live pigs	17 (10.63)	101 (63.12)	38 (23.75)	37 (23.13)	105 (65.62)	22 (13.75)
Sale of piglets	15 (9.38)	104 (65.00)	39 (24.37)	36 (22.50)	106 (66.25)	20 (12.50)
Sale of pig meat	0 (0.00)	32 (20.00)	0 (0.00)	0 (0.00)	160 (100.00)	128 (80.00)

Activities related to health care: The data in the Table 1 depicted that a total of (41.25%) women farmers were actively involved in giving medicines. About fifty percent of women did not participate in veterinary consultation, followed by (46.87%) who did not participate in bringing medicines. While in case of men, a total of (48.75%) did not participate in giving medicines and consultation with veterinary experts. Also (45.63%) and (31.87%) of men had no participation in bringing medicines and disease identification respectively. This might be because either they did not approach or there was lack of veterinary facilities in the area. Another reason might be homemade or indigenous medication was provided to the pigs.

Activities related to care of pregnant sow and piglets: The Table 1 indicated that the activity of disinfection of naval cord was actively participated by (43.75%) women and (35.63%) men. More than thirty five percent women and about forty percent men had partial participation in this activity. Active involvement by women (42.50%) and men (44.38%) was observed in cutting of needle teeth. A total of (35.63%) women and (31.88%) men had partial participation in it. Majority of the women actively participated in sucking practice (66.88%) whereas, (64.38) of the men had no participation in sucking practices. For castration of piglets, a total of (56.25%) men actively participated while about (63.13%) women did not participate. Above sixty five percent of the women had active participation in taking special care to pregnant sow but (65.63%) of the men had no participation. Almost equal extent of participation by women and men was noticed in attending the farrowing as (41.88%) women and (40.00%) had active participation, (35.63%) women and (36.25%) had partial participation and (22.50%), (27.50%) women and men did not participate in it. Post farrowing care was actively participated by women (64.38%) and (57.50%) men did not have participation in it.

Activities related to care of boar: The data in the Table 1 showed that majority (88.13%) of the farm women did not participate in trimming of boar feet, followed by (75.63%) and (74.38%) who also did not participate in scrubbing cleaning and boar maintenance respectively. Similarly, no participation was observed to be more in case of men as about (88.75%) of them had no participation in boar maintenance. This was followed by no participation in scrubbing cleaning (87.50%) and (75.00%) in trimming of boar feet. Only (17.50%), (16.88%) and (5.00%) women had active participation

in maintenance, scrubbing cleaning and feet trimming of boar. The reason might be that boar was not usually reared in many households of the sampled area. Sows were kept by them and for mating, sows were taken to those households who had boar. The owner of the boar would take all the responsibilities during the days of mating on payment basis.

Activities related to general care and management practices of pigs: It was observed (Table 1) that majority (53.125) of the men actively involved in checking weight while (57.50%) of women did not participate in it. Regular inspection was actively performed by (63.125) women while only (23.12%) of men actively involved in it. This might be since as pig farms were within their house premises, women could keep eyes due to their presence of more time in home. Eighty percent of the women and nearly eighty nine percent of men did not participate in the record keeping practice. The possible reason might be that they were not aware as how to maintain register of records. Eighty percent of men did not practice slaughtering while not a single woman was involved in it. However, twenty percent men farmers were actively involved in the slaughtering of pigs. This might be because they usually sold adult live pigs and piglets. A total of (63.12%) and (65.00%) of men had active participation in selling of adult live pigs and piglets respectively. While (65.62%) and (66.25%) women were found to be not participated in sale of adult and piglets respectively. This might be due to the men's dominant role in handling money related matters. In the sale of pig meat, eighty percent of the men farmers had no participation, only twenty percent of them were actively involved. While not a single women had any participation in sale of pig meat. The probable reason was that they mostly sell in the form of live pigs and piglets.

The data presented in the Table 2 depicted the overall extent of participation in pig farming. As revealed in this table, above fifty five percent of the women farmers had medium participation. A total of (24.38%) had high and (20.00%) low extent of participation. A medium participation (58.12%) was also observed in men farmers, followed by high (21.88%) and low (20.00%) extent of participation.

The mean scores were 54.57 and 67.99 with standard deviations of 5.33 and 7.53 in women and men respectively. It could be interpreted that women were not lagging the men in agriculture. The role of women was remarkable as they were trying to

Table 2. Distribution of respondents according to their extent of participation in overall Pig rearing practices (N=160+160=320)

Category	Women			Men			
	No. (%)	Mean	S.D.	Category	No. (%)	Mean	S.D.
Low <54.02	30 (18.75)	59.84	5.82	Low <54.12	38 (23.75)	65.67	11.5
Medium (54.02 - 65.66)	92 (57.50)			Medium (54.12 - 77.21)	99 (61.87)		
High (> 65.66)	38 (23.75)			High (>77.21)	23 (14.38)		
Total	160				160		

Table 3. Z- Test of significance on extent of participation in pig farming practices

Activities	Mean		Sample Variance		Z- calculated value	Z- table value (Two tailed)
	Women	Men	Women	Men		
Housing practices	7.20	6.67	4.61	5.57	2.801*	±1.96
Feeding activity	8.64	9.46	1.99	3.69	-4.34*	
Selection of breed	3.22	4.73	2.22	2.80	-8.53*	
Health care practices	7.26	6.90	2.34	6.22	1.56 ^{ns}	
Care to pregnant sow and piglets	22.63	19.21	19.37	16.11	8.58*	
Care of boar	4.01	3.78	3.24	2.22	1.25 ^{ns}	
General care and management practices	12.57	14.91	4.32	8.01	8.43*	

*Significance at 5% level of probability; ns= non- significant

contribute equally with their partners in pig farming activities. Thus, equal opportunities and facilities should be provided to women farmers just like farm men participation (58.12%) was also observed in men farmers, followed by high (21.88%) and low (20.00%) extent of participation.

The mean scores were 54.57 and 67.99 with standard deviations of 5.33 and 7.53 in women and men respectively. It could be interpreted that women were not lagging the men in agriculture. The role of women was remarkable as they were trying to contribute equally with their partners in pig farming activities. Thus, equal opportunities and facilities should be provided to women farmers just like farm men.

Two sample Z test of participation of gender-based division of activities in piggery: To determine whether there existed difference between two population mean in pig rearing practices, two samples Z- test was performed. The Table 3 gave an idea about the Z- value of women and men farmers. Their mean scores and sample variance were also given.

It was observed from the Table 3 that among the seven pig rearing practices, five activities showed significant difference between women and men. There were significant differences in the five activities such as housing, feeding, breed selection, care to pregnant sow and general care practices of pig rearing. While in case of other two activities, it showed that there was no

significant differences between women and men in pig rearing practices.

CONCLUSION

The pig farming practice is one of the age-old traditional farming activities and most of the tribal community depends on it for their livelihood. Both women and men of a tribal household are involved the pig farming practice. From the study, it came to light that the role of tribal women seemed to be much more in piggery sector. Women played a predominant role in all pig rearing practices such as cooking, feeding, cleaning, health care while men were engaged in arrangement of breeding sow, purchasing and sale of pigs. Above fifty five percent of men and women were found to have medium level of extent of participation. This was followed by more than twenty percent of them having high extent and equally only twenty percent of men and women exhibit low participation. It could be interpreted that women were not lagging the men in agriculture. The role of women was remarkable as they were trying to contribute equally with their partners in pig farming activities. Despite the fact, women's' contributions remain hidden and still considered as an inappreciable segment of the society. Thus, equal opportunities and facilities should be accrued to women farmers just like farm men.

Policy implications : Based on the findings, the study provides the following recommendations: Gender mainstreaming in agriculture is the need of hour. There is a necessity to create a common platform of different stakeholders in agriculture that requires a joint and coordinated effort to empower this vulnerable section through capacity building programmes, exposure visits and educational programmes. Moreover, organizing tribal women into groups will help them to avail benefits in context to piggery farming specifically which is expected to empower them socially and economically.

CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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