LIVELIHOOD SUSTAINABILITY OF RURAL WOMEN THROUGH LIVESTOCK ENTERPRISES - AN ANALYTICAL STUDY IN GOALPARA DISTRICT OF ASSAM

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CHAPTER - VIII

Summary, Suggestions and Recommendations, Conclusion

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The study entitled "Livelihood sustainability of rural women through livestock enterprises"

An analytical study in Goalpara district of Assam was under taken with the following objectives:

1. To find out the socio-economic profile of rural women participating in livestock enterprises.
2. To study the nature and extent of participation of female labour force in all operations concerning management and production of livestock enterprises.
3. To estimate the impact of livestock enterprises in livelihood sustainability.
4. To study the role of women in enhancing household food security through livestock products.

Moreover, to dive deep into the problem and its diversified areas, the following hypotheses were also proposed-

1. Socio-economic factors of rural women have sufficient impact on livestock production
2. There exists association between level of participation and household food security through livestock products.
3. There is significant relationship of improved livestock management and production activities with livelihood sustainability.

Goalpara district was purposively selected for the study due to acquaintance of the researcher who hails from this district. Moreover, the mixed population consisting of tribal and non-tribal people including those from backward communities and scheduled

castes, farming activities and livestock resources, production and productivity from livestock and poultry and wide participation of rural women of the district in livestock activities were the other reasons for selection of the district.

For selection of Respondents a comprehensive list of total villages of the district were prepared block wise from all the eight development blocks of the district. From this list of villages both tribal and non-tribal dominated villages were identified considering the demographic profile available from some secondary sources and ten tribal dominated villages were selected and equal no of villagers with predominantly non-tribal population were also taken for investigation. From these 20 selected villages a list of rural women who were livestock rearers was prepared. Such women should have the criterion of possessing at least one milch cow, or two small livestock (sheep/goat/pig) and / or at least 20 nos of poultry and or duck at their homestead. While preparing this list of women entrepreneurs' assistance was taken from local veterinary officers of the Department of Animal Husbandry and Veterinary or PRI members. From the above mentioned list 20 percent of the women entrepreneurs were selected at random from each village to make the sample of the study which amounted to 350.

For convenience of conducting the research, three sets of variables were taken -- Independent, intermediate and dependent variables. The socio –economic traits of the respondents were the independent variables while there were three intermediate variables-decisions making pattern, knowledge of improved livestock farming and improved livestock management practices. On the other hand, the dependent variables were-:

1. Impact of livestock enterprises on livelihood sustainability
2. Household Food Security through livestock products.

Both primary and secondary data were collected for the study. While the secondary data were collected from extensive review of literature, reports compiled by different departments, Krishi Vigyan Kendra, Research Station and some Non- Govt. organizations. The primary data were collected by the researcher personally with the help of an interviews schedule which consisted of five parts – the 1st part meant for the socio-economic variables, the 2nd part was used for collecting information in respect of

Knowledge level of the respondents in improved livestock farming. The 3rd part consisted of questions regarding improved livestock management practices, the 4th part dwelt with the nature and extent of participation in livestock related activities and the last part was used for gathering information on livelihood sustainability and food security through livestock products.

The primary data were personally collected by the research with the help of the interview schedule during April to December, 2018. Data thus collected were arranged tabulated and subjected to statistical analysis like percentage, frequency, mean, S.D.'t' test, x^2 test, correlation and regression.

Thus, the results were presented in accordance with the set objectives and hypotheses.

8.1. SALIENT FINDINGS OF THE STUDY

1. Majority of rural women were middle aged (57.23 percent) followed by elder (17.42 percent) and young (14.23 percent) in pooled sample and there was no significant difference between the tribal and non tribal respondents in respect of their age.

2. In respect of education majority of the tribal women were found to have read up to middle school (18.00 percent) followed by those who read up to high school (17.72%) and primary school (3.42%), higher secondary (2.85%), illiterate (1.14%) and graduate (0.85 percent). on the other hand, majority of the non-tribal women (16.00%) read up to middle school followed by those read up to high school (14.0, graduate and above (1.14%).

3. In respect of family education majority (80.86%) of the respondents from pooled sample had medium level of education followed by 10.57 percent with high and 8.57 percent with low education level. In tribal women 37.15 percent, 7.43 percent and 5.43 percent had respectively medium, high and low level of education. But in the non tribal respondents 43.71 percent had medium level of education; while an equal no (3.14 percent) had high and low level of education. The tribal and

nontribal respondents differed significantly in respect of their family education and the average score of family education of non-tribal respondent was higher than that of tribal people.

4. In pooled sample 88.23 percent of the rural women had medium sized family (3-6 number) followed by 9.43 percent with large and 2.25 percent with small size family. However, in tribal group 43.71 and 4.86 percent and 1.43 percent had medium, large and small sized family respectively. There corresponding figures for non-tribal respondents were 44.57 percent, 4.57 percent and 0.86 percent. The mean value of family size indicated that the non-tribal people had significantly larger family size then that of the tribal people**.**

5. In pooled sample 64.28 percent of the rural women participated in training programme of up to 3 days while 30.58 percent did not attend any training programs and 5.14 percent attended training programs of more than 3 days.

6. Regarding occupation 71.72 percent of the rural women had agriculture as their primary occupation followed by 23.71 percent animal husbandry 2.57 percent were daily wage earners and 2.00 percent had service as their primary occupation.

7. In milk production 85.17 percent of the respondents in overall sample produced milk annually of less than 520 liters while 12.23 percent yielded milk ranging from 520-1176 liters and 2.00 percent produced more than 1176 liters of milk annually. But from the tribal community 48.23 percent produced less than 520 liters of milk annually followed by 1.71 percent having produced milk ranging from 520 to 1176 litters. However, in non tribal respondents 37.43 percent had annual milk yield of less than 520 liters followed by 10.57 percent with milk production ranging from 520 to 1176 liters and any 2.00 percent produced milk of more than 1176 liters. The non tribal responding produced significantly higher quantity milk.

8. In respect of meat production an over whelming majority (91.14percent) of the respondents in pooled sample produced meat of up to 679 kg annually and the remaining 8.86 percent produced more than 679 kg of meat annually. of the tribal households in the study area 41.14 percent produced meat up 679 kg annually and the remaining 8.86 percent could produce more than 679 kg of meat annually. But

the non-tribal respondents could produce meat annually up to 679 kg and none could exceed it. The significant‘t’ value indicated that meat production of tribal households were significantly higher than the non-tribal.

9. The scenario in egg production in the study area was also delineated with 48.00 percent and 2.00 percent tribal respondent having produced up to 753 nos. of eggs and more than that respectively. The corresponding percentage in case of non-tribal respondents was 47.43 percent and 2.57 percent. Consequently, in pooled sample an overwhelming majority of the respondents were reported to have produced eggs of up to 753 nos. annually and only 4.57 percent of them could exceed this limit of egg production. The non-significant‘t’ value implied that there was no significant difference between the tribal and non-tribal in respect of egg production.

10. So far as the types of family systems were concerned in the study area it was visible that 77.43 percent of the respondents in pooled sample had nuclear family in contrast to only 22.57 percent having joint family. The tribal and non-tribal people bore similarity in respect of family type.

11. Possession of cultivable land by the respondents was also investigated in the study area and it became evident that in the pooled sample 86.29 percent of the respondent had medium land holding.

12. Total land under the possession of the respondents’ family was also taken into consideration. In pooled sample 87.71 percent of the rural women’s family had medium land holding (1-10bigha) while 8.00 percent had large land holding and 4.29 percent had small land holding. But in case of tribal house holds 44.57 percent, 3.43 percent and 2.00 percent had medium, small and large land holding. But the non-tribal households exhibited an altogether different picture with 43.14 percent having medium total land holding and 6.00 percent and 0.86 having large and small land holding.

The significant ‘t’ value indicated the significant difference between tribal and non-tribal respondents in respect of their total land holding.

13. Based on the cultivable land possessed by the respondents' families, they were classified into landless, marginal, small and medium farmers. Accordingly, 56.86 percent of the households in the study area were marginal farmers followed by 34.29 percent being land less, 7.43 percent small farmer and only 1.42 percent was medium farmers.

14. Livestock possession of the respondents' families was of utmost importance as the study dwelt with livestock enterprises and its impact on sustainable livelihood. In pooled sample 52.57 percent of the respondents had medium level of livestock strength followed by 39.71 percent high and only 7.71 percent having low strength of livestock under their possession. There was no significant difference between the tribal and non-tribal respondents in respect of their livestock strength.

15. In respect of species wise livestock possession, it was revealed in the study that cattle population for both tribal and non-tribal respondents was almost same. But pig possessed by tribal families were much higher in number than the non-tribals. Similarly, goat reared by non-tribal families was much higher than the tribals.

16. Income earned by the respondents from livestock was vital for the study which revealed that almost half of the respondents (50.57 percent) earned medium income (Rs. 4290 to 44632) from livestock while 8.00 percent received high and 1.43 percent received low income from livestock annually in pooled sample. The figures for tribal and non-tribal were almost same and 't' value was non-significant.

17. Income of the respondents from sources other than livestock was also estimated. It was revealed that a large majority of the respondents (90.57percent) from the pooled sample earned low income (<Rs.23406.07) from sources other than livestock, while 28.23 percent earned high income and 7.42 received medium income from such sources. Both tribal and non-tribal households earned similar income from other sources and hence the 't' value was non-significant.

18. The picture in regards to total income generated by the respondents from all possible sources was also estimated. It was revealed that as high as 90.00 percent of the respondents household generated medium level of income while 8.57 percent

and 1.43 percent received high and low income respectively. The 't' value implied that there was no significant difference between tribal and non-tribal respondents.

19. In overall sample 68.86 percent, 18.00 percent and 13.14 percent of the rural women had medium, high and low social participation. The tribal and non-tribal women had similar social participation and hence they did not differ significantly in this regard.

20. Majority of the rural women (74.00%) had medium mass media exposure followed by high (15.72%) and low (10.28%). But in tribal group 38.57 had medium mass media exposure, while an equal number had low and high mass media exposure. On the other hand, 35.43 percent of the non-tribal women had medium level of mass media exposure followed by 10.00 percent with high and 4.57 percent with low mass media exposure. The 't' value indicated that the mean mass media exposure for the non-tribal women was significantly higher.

21. Majority of the tribal women (79.14%) had medium level at extension contact followed by 15.43 percent with high and 5.43 percent having low extension contact in pooled sample. But in tribal respondents 40.86 percent had medium extension contact. While an equal no (4.57%) had low and high extension contract. In the non-tribal group 38.28 percent had medium extension contact followed by 10.86 percent and 0.86 percent having high and low extension contract respectively. The significant 't' value indicated that non-tribal respondents had higher extension contact.

22. Majority of the rural women (78.00 percent) had medium level of participation in decision making in livestock management and marketing, while 12.57 percent and 9.23 percent had low and high participation respectively. Among the tribal women 38.57 percent, 8.57 percent and 2.86 percent had medium, low and high participation in decision making. On the other hand, among the non-tribal respondents 39.43 percent, 6.37 percent and 4.00 percent had medium, high and low participation in decision making.

The 't' value (4.18) indicated that the non-tribal women had significantly higher level of participation in decision making in livestock management and marketing.

23. Majority of the rural women (68.28%) had medium level of knowledge in improved livestock farming followed by 18.87 percent and 12.85 percent with high and low knowledge level. Among the tribal women 31.71 percent had medium level of knowledge while 12.29 percent and 6.00 percent had high and low knowledge level. In non-tribal women 36.57 percent had medium level of knowledge followed by 6.86 percent and 6.57 percent with low and high knowledge level. The significant't' value implied that tribal women had significantly higher knowledge level.

24. Further in order to enquire the impact of socio-economic factors on livestock production correlation and regression analysis were conducted between the socio-economic variables with livestock population, milk production, meat production, egg production and income from livestock. It was revealed that extension contact and knowledge in improved animal husbandry exhibited significant positive correlation with livestock population. But no such relation existed among tribal women. Similarly, none of the socio-economic traits of the tribal women had significant contributory effect on livestock population. However, in non-tribal women extension contact and knowledge level exhibited significant contributory effect on livestock population.

In respect of milk production family education, land holding, extension contact and decision making were found to have significant positive correlation with milk production for tribal women. While only mass media exposure had such positive and significant correlation with milk yield. On the other hand, only mass case exposure displayed significant contributory effect upon milk yield, in case of tribal women, while family education and extension contact had significant contributory effect upon milk yield in non-tribal women.

In the case of egg production education and mass media exposure of the tribal women had significant and positive correlation with egg production while for

non tribal women their land holding and knowledge in improved animal husbandry were found to have significant positive correlation with egg production.

The regression analysis revealed that mass media exposure of tribal women had significant contributory effect on egg production. Among the non tribal women knowledge level in improved animal husbandry exhibited significant contributory effect on egg production.

Three variables viz. family education, extension contact and decision making of the tribal women were found to be positively and highly significantly correlated with income from livestock. On the other hand, mass media exposure, extension contact and knowledge in improved animal husbandry of the non tribal women had high significant and positive correlation with income from livestock.

Extension contact of the tribal respondents exhibited significant contributory effect on income from livestock, but in non-tribal women both extension contract and mass media exposure displayed significant contributory effect upon income from livestock.

In case of meat production more of the socio-economic factors of the tribal women could show significant positive correlation with it, while in non tribal women. Extension contact showed significant positive correlation with it. In the same none of the variables in tribal women had significant contributory effect upon meat production. But in on tribal women family education, land holding and extension courage showed significant contributory effect upon meat production.

From the above findings it is abundantly clear that same of the socio-economic factors has sufficient impact on livestock production.

25. In regards to the nature and extent of participation of female labour in livestock enterprises, the findings of the study revealed that 42.86 percent of the tribal women adopted improved livestock management practices followed by 6.57 percent and 0.57 percent having high and low level of adoption. The corresponding percentages in non tribal female were 36.57 percent, 3.43 percent and 10.00 percent respectively. However, in pooled data a large majority (79.43%) had medium level

of improved practices followed by 10.57 percent and 10.00 percent having low and high level of adoption. The non tribal women had significantly higher level of adoption of improved livestock management practices than the tribal female.

26. The improved livestock management practices were vaccination, concentrate feeding, deworming, pregnancy diagnosis by the help of veterinarians and fodder cultivation etc. The findings revealed that on overwhelming majority of both tribal and non tribal families adopted vaccination in cattle but it was yet to make an in-rood in Buffalo population.

Further vaccination of pigs was popular among the tribal people, whereas pig rearing was rare among non tribal and hence its vaccination did not arise. On the other hand, despite the availability and effectiveness of vaccines for goat it was not widely practiced by both tribal and non tribal people due to their lack of awareness and interest. Similarly, fowl vaccination was observed to have been practiced by only 20 percent of the respondents and Duck vaccination was a rare phenomenon.

27. So far as concentrate feeding was concerned in livestock rearing it was practiced in cattle by both tribal and non tribal families. It was also practiced in pig rearing by the tribal respondents and in other species it has not yet been adopted. Similarly deworming was also observed to have been practiced in cattle and to some extent in pig rearing by tribal respondents. Pregnancy diagnosis with the help of veterinarians was observed in cows but in other livestock it was yet to take off. Fodder cultivation wherever practiced was meant for dairy cattle and other species old not received attention.

28. A fairly large majority of the rural women (76.00%) spent medium length of time (2.73-4.30 hrs) daily in livestock related activities followed by 10.57 percent and 1.43 percent having spent long (more than 4.30) daily for livestock and short length of time (<2.73) daily. The t value indicated that non-tribal female spent significantly longer time in livestock related activities than the tribal women.

29. In respect of level of participation majority of the rural women had medium participation followed by 19.14 percent with high and 7.43 percent with low level

of participation. However, in tribal house holds 44.29 percent had medium level of participation followed by 3.14 percent and 2.57 percent having high and low participation. On the other hand, 29.14 percent of the non tribal respondents had medium level of participation followed by 16.00 percent and 4.86 percent with high and low participation respectively. The 't' value indicated that non tribal female bad significantly higher level of participation in livestock related activities.

30. The findings revealed that some activities like collection of fodder, milking of animals, selling of milk and preparation of milk products witnessed higher female participation in non tribal communities. Similar phenomenon was observed for collection of dungs, proportion of cow dung cake, bathing of animals, care of sick animals and care of new born animals.

31. In respect of nature of female participation in livestock related activities lone female participation was observed in activities like watering of animals, collection of eggs, hatching of eggs, collection of dung, care of sick animals and care of new-born animals. But joint participation of husband and wife was seen in activities like-collection of folders, chaffing of fodder, preparation of feed for animals, cleaning of animal shed, milking, selling of milk, feeding of birds, preparation of feeds for birds, maintenance of birds' shed and bathing of animals etc.

32. The statistical analysis revealed that participation in livestock related activities was significantly associated with household food security in pooled data and also in tribal community. However, such association was not significant for non tribal community.

33. Improved livestock management practices and household food security were observed to have significant association in pooled data and in non-tribal community, However, such association was non-significant in tribal community.

34. In respect of role of livestock enterprises in livelihood sustainability a substantial segment of both tribal and non tribal women realised it which got reflected in their responses in statements like- "Ensure income for household support, overcome seasonal crisis", "Get bank loan", Support family health", "training for knowledge and skill developments", Food Security", "Solve unemployment problem", "Make

membership in social organisation", "feeling of inclusion in society", "Avail services like electricity", "Reduce vulnerability period like flood", "More sustainable use of resources".

35. Level of livelihood sustainability was also estimated and it was found that majority of the tribal women (39.75%) had derived medium level of livelihood sustainability followed by 6.00 percent having low and 4.29 percent having high livelihood sustainability. The mean and S.D. were 40.39 and 4.49 receptively. Whereas in non tribal women 41.71 percent had medium level of livelihood sustainability while 5.43 percent had high and 2.86 percent had low level of livelihood sustainability. The mean and S.D. were 42.62 and 4.86 respectively.

In pooled sample a large majority of rural women (81.43%) had medium level of livelihood sustainability followed by 9.71 percent with high and 8.86 percent with low livelihood sustainability. The overall mean and S.D. were 41.75 and 4.74 respectively; the't' value (3.08) indicated that there were a significant difference in the level of livelihood sustainability. The non tribal women perceived significantly higher level of livelihood sustainability.

36. Majority of the tribal women (91.19%) perceived medium level of household food security through livestock products, while 5.71 percent and 3.41 percent perceived high and low level of food security respectively. The mean and S.D were 38.55 and 6.88 respectively.

On the other hand, 34.23 percent, 14.29 percent and 1.43percent of the nontribal women perceived medium, high and low level of food security. The mean and S.D were 42.80 and 10.04 respectively. In pooled data 75.43 percent derived medium level of food security while 20.00 percent had high and 4.57 percent had low level of household food security. The mean and S.D were 40.68 and 8.89 respectively. The t value (4.61) indicated that there was significant difference between tribal and non tribal women in respect of their household food security through livestock products.

37. Knowledge level in improved animal husbandry of non tribal women had a positive and highly significant correlation with livelihood sustainability. But the tribal women failed to show such relationship.

38. Improved livestock management practices had shown positive and highly significant correlation with livelihood sustainability for tribal, non tribal and pooled sample.

39. Participation in livestock related activities had exhibited positive and significant correlation with livelihood sustainability in tribal, non tribal and pooled data.

40. Milk production exhibited positive and highly significant relation with perceived level of household food security for non-tribal women but not in tribal women

41. Meat production showed positive and significant relationship with household food security in tribal women, but not in on tribal women

42. Egg production showed positive and significant relationship with household food security in tribal women and pooled sample but not in non tribal women.

8.2. SUGGESTIONS AND RECOMMENDATIONS

The following suggestions may be given for livelihood sustainability of rural women of Goalpara district through livestock enterprises:

1. Proper long term and short term policy formulations for modernization of livestock management practices, diversification and integration of farming system approaches, especially in the outreach areas dominated by tribal populations.

2. Skill upgradation and capacity building, institutional credit facilities and Extension of delivery of veterinary services.

3. Better utilization of barren and uncultivable lands and available natural resources.

4. Initiation of contract farming in livestock and poultry sector for the women entrepreneurs.

5. Commercialization of livestock enterprises and extension of livestock marketing.

6. Formation of dairy and poultry cooperatives and at the village, gram panchayat, block level and at the district level.

7. Creation of more infrastructure facilities in every block for prompt service delivery, feed mill with local feed ingredients.

8. Special incentive to the small and marginal women entrepreneurs especially for the tribal women. Award of progressive women entrepreneurs to be given at the district level and also at state level on Republic day and Independence Day.

9. Identification of priority areas and milk based technical and financial support to the entrepreneurs and necessary technical supports.

10. Rabha Hasong Autonomous council needs to take special attention for the women of Rabha tribes in special and others under the council area providing financial and technical supports in livestock and poultry rearing practices after proper identification of the priority areas in livestock enterprises. Besides the council needs to arrange training and exposure visits of the interested women entrepreneurs.

11. More allocation of budgetary provisions and special package for the women entrepreneurs.

12. Rabha Hasong Autonomous council needs to take special attention for the women of the council area providing special package for establishment of livestock and poultry farms by the women in the council area, besides organizing awareness, capacity buildings in livestock and poultry sectors.

8.3. CNCLUSION

The following logical conclusions could be drawn from the present study-

1. Although the literacy rate in the study area was found to be high the level of education of the respondents was below average which is corroborated by the findings that among the tribal respondents about 90 percent of them read up to high school only. Similarly, among the non-tribal respondents also almost equal

percentage of them read up to high school level. In the overall sample the percentage of graduates and higher qualification holder was only 2 percent.

2. In respect of family's education, the tribal respondents had significantly lower average score than their non tribal counterpart, which led to the conclusion that tribal people are still lagging behind in education. This is supported by the census report of Assam, 2011 where the overall literacy rate of tribal people in Goalpara district was 22.57 against the overall literacy rate of the district of 67.37 percent.

3. Classifications of the respondents based on their family's land holdings revealed that an overwhelming majority (91.72%) of them hailed from landless and marginal farm families. Therefore, it can safely be concluded that in Goalpara district mostly the women from landless and marginal farm family engage themselves in livestock activities. The participation of women from semi-medium or big farm family was conspicuously absent in the study.

4. The nontribal respondents had significantly higher family size than the tribal respondents, which might be attributed to the failure of outreach of the family planning programme on the one hand, and lack of willingness on the part of some segment on the other. It is relevant to mention here that population growth is one of the causes of food insecurity in developing countries including India.

   Moreover, poor road connectivity and absence of electricity facilities, network services in the tribal dominated localities are other reasons responsible for their low mass media exposure.

5. In respect of training program, it was noted that almost one third of the rural women (30.58 percent) did not receive any training. Therefore, it can be inferred that some of these rural women despite having willingness and interest could not avail any chance to attend any training programme for varied reasons.

6. Milk production scenario in the study area revealed that non tribal people had significantly higher milk production than their tribal counterpart. On the other hand, tribal respondents had higher meat production. However, they did not differ

significantly in terms income accrued from livestock enterprise. In both the cases income from livestock was not lucrative.

7. The study revealed that the tribal respondents had significantly lower level of mass media exposure than the non tribal people. This might be due to the production of media programmes mostly in Assamese and other national and international languages. The lowly educated tribal people couldn't follow and hence their exposure is low.

8. The extension contact of the tribal people was significantly lower than the non tribal people. This is due to their remotely located habitation, shyness and, lack of interest etc.

9. It was interesting to note that in the decision making process in livestock management and marketing the non tribal women had higher participation than the tribal women.

10. The non-tribal women owing to their higher mass media exposure and higher extension contact adopted more improved practices in livestock management. Further they were also more aware to the govt. sponsored programmes/schemes for livestock development.

11. Some of the socio-economic factors have sufficient impact on livestock production as the findings of the study revealed that knowledge in improved animal husbandry had significant and positive relationship with livestock population. In non tribal women extension contact had positive and significant correlation with livestock population.

    Further knowledge in animal husbandry, family education and family size emerged out as the good predictors of livestock population.

12. Family education and extension contact displayed positive significant correlation with milk production. The tribal women with their comparatively low family education and low extension contact could produced less milk. Further mass media

exposure, family size, extension contact and family education were the good predictors of milk production.

13. Education and mass media exposure had positive significant relationship with egg production for tribal women. But for non-tribal women knowledge in improved animal husbandry and land holding had positive and significant relationship with egg production. But in pooled data it was revealed that the level of participation in decision making in livestock management and marketing had positive and significant relationship with egg production.

    Further, mass media exposure was a good predictor for egg production.

14. In respect of income from livestock it was revealed that family education, extension contact, decision making in livestock management and marketing, mass media exposure and knowledge in improved animal husbandry had positive significant correlation with income from livestock

    Further extension contact and mass media exposure were the good predictors of income from livestock.

15. In respect of meat production extension contact showed positive and significant relation with meat yield.

    Further family education, land holding and extension contact came out as the good predictors of meat production in non tribal area as well as pooled sample.

    Therefore, it can be concluded that the socio -economic and some personal factors like land holding, family education and education of the respondents, participation in decision making in livestock management and marketing, mass media exposure, extension contact, family size and knowledge in improved animal husbandry had significant impact on livestock production.

16. The non-Tribal people had higher level of adoption of improved livestock management practices. However, the improved technologies adopted were confined mostly in cattle and other species received less attention. But in case of the tribal households, priority and preference were paid for pig and fowl keeping.

17. The non tribal women spent longer period in livestock related activities, that too with higher frequency in comparison with the tribal women.

18. In respect of nature of participation in livestock related activities, there were almost similar participation in both the communities. There was lone participation and joint participation with husband and in-laws.

19. The association of the level of participation in livestock related activities with household food security was also investigated.

    It was revealed that participation of women in livestock related activities had significant association with food security in tribal household and in pooled sample but not in non tribal household.

    Improved management practices had significant association with household food security in pooled sample, and non tribal people but not in tribal people.

    Therefore, it can be concluded that rural women perceived that their participation in livestock related activities with the adoption of improved animal husbandry helped them to attain food security, but the non-tribal due to the larger family size and lower level of knowledge in improve animal husbandry had got some amount of haziness in their perception so far as the role livestock was concerned with food security.

20. About 90 percent of the rural women being the respondents of the study hailed from landless and marginal farm families. They, irrespective of their ethnicity, realised the role of livestock enterprise in livelihood sustainability. But while objectively determining the level of livelihood sustainability, the non tribal people had derived higher level of livestock sustainability from livestock enterprise.

21. The level of perceived food security through livestock products was also determined. The non tribal people derived higher level of food security from livestock products.

22. Knowledge in improved animal husbandry, improved livestock management practices and participation in livestock related activities had significant and positive correlation with livelihood sustainability in non tribal people and also in pooled

data. But in tribal people knowledge level did not show significant relation with livelihood sustainability.

Therefore, it can be concluded that the improved livestock management practices and participation in livestock related activities were positively and significantly related with livelihood sustainability.

Lastly it is concluded that the non-tribal households in the study area with their relatively higher family education, smaller land holdings and larger family size could earn almost similar income to manage their livelihood.

Further, they could avail higher mass media exposure and greater extension contact which facilitated them to go for higher adoption of improved livestock management practices. Moreover, the non-tribal women had higher participation in decision making in livestock management marketing

Therefore, the non-tribal women with their higher adoption of improved livestock management took part more frequently spending longer period of time in livestock related activities. Consequently, they could derive higher level of sustainability despite of their smaller land holding and larger family size.

Therefore, the above description vividly demonstrates livelihood sustainability of rural women through livestock enterprises. Further, it needs to be mentioned that the tribal women though lagging behind their non-tribal counterpart perceived the role of livestock enterprises in livelihood sustainability and realized adequately the role of the livestock products in household food security.

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