Participation of Rural Women in Livestock Rearing: A Case Study On Krishnagiri District in TamilNadu

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Abstract
Women contribution to agriculture is seldom recognized in spite of their active role in the agriculture as well as livestock rearing activities in developed as well as developing countries. The study is to analyse the association between the socio-economic characteristics of rural farm women and the extent of their participation in livestock farming in Krishnagiri district of Tamil Nadu. A multistage random sampling technique was used to collect the data from 127 farm women from two villages viz., Paiyur and Jegadevipalayam villages of Krishnagiri taluk in Krishnagiri district. The data were collected through pre-tested semi structured interview schedule, during the months of August to December 2013. The quantitative data acquired from the field were transferred in the MS Excel and SPSS in order to summarize the gathered data. The formation was presented in the form of simple-tables containing mean values, frequencies, percentages and linear regression analysis. The results of the study showed that farm women have a close association with livestock farming in the study areas. These results tend to suggest a more active role for this segment of rural society so as to achieve rural development through combining women in livestock development.

Keywords: Rural Area; Rural Women; Agriculture, Livestock rearing; Krishnagiri district

1. Introduction
The contributions of rural women, though not less than that of men in terms of time and effort, are invisible because they are largely unpaid and home based. Their contributions are continued to be given lesser importance while formulating livestock / rural development programmes. Though the association, especially while aiming at rural development through livestock development, lack of empirical evidence on the magnitude of female participation and the extent and nature of their association in livestock farming operations, however, limit our effort in exploiting this linkage. The study has been planned to fill this gap, arising out of the dearth of documented evidence of female participation in livestock farming.

Tending animals is considered as an extension of domestic activities in Indian social system, and most of the animal husbandry activities like bringing fodder from field, chaffing the fodder, preparing feed for animals, offering water to them, protecting them from ticks and lice, cleaning of animals and sheds, preparation of dung

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cakes, milking, ghee-making and marketing of produce are performed by women.

2. Review of literature

Women along men are the main actors in feeding the world. Because in many, if not most, rural societies women are, in fact, farmers; often bear the major or sole responsibilities for crop production. They work as mothers, household labourers and as social production workers [1].

Throughout the world rural or farm women are involved extensively in agricultural operations. A number of research studies had proved their participation in various agricultural activities having complementary roles, sharing activities related to crop production and livestock production and management, fish farming and forest management with her male counterpart [2].

However, in some parts of the world their participation in agricultural activities is higher than that of male person [3].

In India, about 80 percent of the female population lives in the rural areas and 86 per cent of the rural women work in agriculture and allied activities. Rural women perform a variety of roles, of which many are of greater economic significance [4].

Farm women play a significant role in domestic and socio-economic life of the society and therefore, national development is considered less feasible without developing this important and substantial segment of our society. Having been highly employed in livestock rearing activities, rural women were found to devote 90 percent of their time on cattle care, making it more or less a female domain [5].

2. Objective of the study

The objective of this study is to analyse the association between the socio-economic characteristics of rural farm women and the extent of their participation in livestock farming in Krishnagiri district of Tamil Nadu.

3. Materials and method

The study was aimed to identify rural women participation in livestock rearing activities especially crop related involvement. For this study Krishnagiri district of Tamil Nadu state was randomly selected for the study, for this district has the highest livestock population across the districts of the state. Krishnagiri is populated with 18,79,809 peoples, according to 2011 population and housing census. Out of which 51.08 percent are males and 48.92 are females. Krishnagiri district is 5143 sq. km. with population of 370 persons km2, while rural and urban population is 77.21 percent and 22.78 percent respectively (census, 2011). Krishnagiri district is considered and important for its agricultural base and particularly famous for its fertile land. Important Food and Non-Food corps of Krishnagiri district are Paddy, Ragi, Cholam, Redgram, BlackGram, Mango, Coconut, Cabbage, Banana, Tomato, Flowers, Groundnut, Cotton. In addition to Krishnagiri district is house of a number of agro-based industries e.g. sugar mills, flour mills, textile spinning / weaving mills, rice husking units and cotton ginning / pressing factory.

A cross sectional survey research design was used for this study, following a multistage random sampling process. Krishnagiri District of Tamil Nadu has been selected for the study, considering the predominance of agriculture as a source of livelihood to vast population and the significances of this study to serve as a model to be replicated to other regions of the state. Therefore, the district forms the universe of the study. Krishnagiri district have 5 taluks, out of which, Krishnagiri taluk was purposively selected for the study based on its specific agro-climatic features, extent of area under canal irrigation, cropping pattern, irrigation intensity and other socio economic characteristics. It has 142 villages, out of the 142 villages, two villages viz., Paiyur and Jegadevipalayam villages of Krishnagiri taluk were purposively selected at randomly for this study and in such a way that these villages are situated within the periphery of the district. A total of 127 farm women households were selected by using stratified random sampling technique method. This was done by applying sample size formula for 50 numbers (Pilot study).

Thus, a total of 127 farm women households were included in the study. The data were collected through pre-tested semi structured interview schedule, during the months of August to December 2013. The obtained data related to livestock species, average number of
animals per households, livestock types, herd sizes, level of human participation in livestock activities, gender-based participation and training needs in various livestock activities. The quantitative data acquired from the field were transferred in the MS Excel and SPSS in order to summarize the gathered data. The formation was presented in the form of simple-tables containing mean values, frequencies, percentages and linear regression analysis. Linear Regression Model was fitted to assess the factors influencing the extent of farm women participation in livestock rearing, one each for large ruminants and small ruminants. The form of the linear regression function fitted to assess the variables influencing average time spent by farm women in keeping of the large ruminants was as follows;

\[ Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + b_8 X_8 + b_9 X_9 + u \]

Where,

- \( Y \) = Average time spent by women of the family
- \( X_1 \) = Type of family (nuclear-0; and joint-1)
- \( X_2 \) = Age of women
- \( X_3 \) = Educational status of women (in years)
- \( X_4 \) = No's of Dependent in the family
- \( X_5 \) = No's of Earner in a family
- \( X_6 \) = Hired labours for animal husbandry in hours per day.
- \( X_7 \) = Annual income of the family
- \( X_8 \) = Total large ruminants in animal units,
- \( X_9 \) = Total small ruminants in animal units,
- \( a \) = Constant
- \( b_1 \ldots b_9 \) = regression co-efficient
- \( u \) = Error term.

### Pilot study

Sample size \( n = \frac{(ZS)}{E} 2 \)

Where \( Z \) = Standardized value corresponding to a confidence level of 95% = 1.96

\( S \) = Sample (SD) Standared deviation from pilot study of 50 sample = 0.287

\( E \) = Acceptable Error = 5% = 0.05

Hence, sample size \( n = \frac{(ZS)}{E} 2 \)

\[ = \frac{(1.96*0.287/0.05)}{2} \]

\[ = 126.57 \]

\[ = 127 \]

### 4. Results and discussion

The results of the study are presented in Table 1 and 2. It may be observed from table 1 that the coefficient of multiple determination (R2) obtained for the model fitted was 0.7652, indicating that 76.52 percent of the variations in the average time spent by women per household for large ruminants were explained by the chosen variables. ‘F’ value demonstrated the statistical significance of R2 in the model fitted. The variables such as educational status of women, number of dependent members of the family, annual income of the family, average hired labour hours and number of large ruminants in animal units significantly influenced the average time spent by women on keeping of large ruminants.

The coefficient for number of large ruminants in animal units indicated that every unit rise in this variable above the mean level would results in an increase of average time spent by females by 22.67 minutes per day per household. The coefficients for number of dependent members in family and average hired labour hours utilised for keeping of large ruminants indicated that every unit increase in these variables would decrease the time spent by women by 28.45 and 3.34 minutes respectively. Significant and positive coefficient for the community variable indicated that the lower caste women spent more time on large ruminants keeping. The significant negative coefficient for the educational status of the women variable indicated that literate females spent lesser amount of time on large ruminant keeping than illiterate women.

The results of the study revealed that most of the tasks related to livestock keeping were performed by the farm women (table 2). On an average, farm women spent about 410.10 minutes per day per household on the care of large ruminants.

### 5. Conclusions

The results of the study produce well documented evidence that farm women have a close association with livestock farming in the study areas. These results tend to suggest a more active role for this segment of rural society so as to achieve rural development through combining women in livestock development. In the light of these results, the following policy suggestions...
are made to fully and productively exploit the women-livestock lineage. Government should launch specific training and educational programmes for rural women in view the livestock keeping problems. Channels of information, credit, inputs and access to markets have to be aimed at women as they played a very important role in livestock keeping and decisions related to livestock productions. There is also the need for bringing the services available to rear the animals physically closer to women. Promoting intensive livestock rearing in the rural areas may encourage the females to participate more in livestock keeping as this practice did not require farm women to take animals for grazing far away from home, and Encouraging the formation of rural women livestock farmer’s co-operative society may increase women participation in livestock rearing.

**Table 1** Estimated Co-Efficient of the regression equation among rural women participation in livestock rearing in Krishnagiri district

<table>
<thead>
<tr>
<th>Variables</th>
<th>Regression coefficient</th>
<th>Standard errors</th>
<th>‘t’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>343.44</td>
<td>19.013</td>
<td>18.063</td>
</tr>
<tr>
<td>X1 = Type of family (nuclear-0; and joint-1)</td>
<td>7.21</td>
<td>7.4</td>
<td>0.974</td>
</tr>
<tr>
<td>X2 = Age of women</td>
<td>-0.216</td>
<td>0.548</td>
<td>-0.394</td>
</tr>
<tr>
<td>X3 = Educational status of women (in years)</td>
<td>7.655***</td>
<td>4.561</td>
<td>1.678</td>
</tr>
<tr>
<td>X4 = No’s of Dependent in the family</td>
<td>-28.45*</td>
<td>5.58</td>
<td>-5.099</td>
</tr>
<tr>
<td>X5 = No’s of Earner in a family</td>
<td>-2.13</td>
<td>4.3</td>
<td>-0.495</td>
</tr>
<tr>
<td>X6 = Hired labours for animal husbandry in hours per day</td>
<td>-3.34**</td>
<td>1.31</td>
<td>-2.550</td>
</tr>
<tr>
<td>X7 = Annual income of the family</td>
<td>4.22**</td>
<td>2.45</td>
<td>1.722</td>
</tr>
<tr>
<td>X8 = Total large ruminants in animal units,</td>
<td>22.67*</td>
<td>2.41</td>
<td>9.407</td>
</tr>
<tr>
<td>X9 = Total small ruminants in animal units,</td>
<td>-2.11</td>
<td>4.14</td>
<td>-0.510</td>
</tr>
<tr>
<td>R2</td>
<td>0.7652</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R2</td>
<td>0.8136</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>174.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>127</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Survey data
* and ** Significant at 1 percent and 5 percent levels respectively

**Table 2** Average time spent on animal based tasks by rural farm women participation in livestock rearing

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Particulars</th>
<th>Average time spend per day per household (minutes)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Animal health care</td>
<td>23.10</td>
<td>5.63</td>
</tr>
<tr>
<td>2</td>
<td>Breeding</td>
<td>10.21</td>
<td>2.49</td>
</tr>
<tr>
<td>3</td>
<td>Feeding</td>
<td>221.67</td>
<td>54.05</td>
</tr>
<tr>
<td>4</td>
<td>Housing</td>
<td>18.45</td>
<td>4.50</td>
</tr>
<tr>
<td>5</td>
<td>Marketing</td>
<td>68.55</td>
<td>16.72</td>
</tr>
<tr>
<td>6</td>
<td>Milking</td>
<td>42.99</td>
<td>10.48</td>
</tr>
<tr>
<td>7</td>
<td>Watering</td>
<td>25.13</td>
<td>6.13</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>410.10</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Survey data
Acknowledgement

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