Possession & Gender-Wise Ownership of Domestic Animals by Female Farmers of Sikkim

Nidhi Dwivedy, A Research Scholar
Sikkim Manipal Institute of Technology (SMIT), Management Department Majitar, Sikkim, India

ABSTRACT

The study examined the possession & gender-wise ownership of domestic animals of sample female farmers of Sikkim state. In the State, with the increasing population, per capita land availability for farming has been consistently declining and also according to National Policy for Farmers 2007, the primary focus of which is on ‘farmer’ defined holistically and not merely on agriculture. It becomes therefore, essential, that allied sectors should be developed to get supplementary sources of income. Keeping this in mind, data was collected from 230 female farmers through interviews using a pre-designed schedule from 24 circles from all the four districts of Sikkim State in North- Eastern India. Based on their subjective judgments, possession & gender-wise ownership of domestic animals was measured and analyzed using the Statistical Package for the Social Science (SPSS). Some descriptive statistics, such as percentage as well as one sample t-test of inferential statistics is used to interpret the data. The findings showed that the women had better opportunities for rearing livestock. However, a gender disparity in livestock ownership was observed. Women owned fewer cows, pigs, goats, no bullocks but relatively more of small animals i.e. only poultry as compared to men. At the end, some useful suggestions are also made so that through the ownership and development of these allied sectors, female farmers can improve their socio-economic condition.

KEYWORDS: possession, gender-wise ownership, female farmers, domestic animals, Sikkim.

INTRODUCTION

Agriculture is the predominant activity of the State. Small and marginal farmers are critical to the economy of Sikkim. A large percent of the State’s population depends on the agriculture and forestry sector for their livelihood. Raising livestock is particularly an important activity for limited-resource farmers and stakeholders. People rear milch animal & other livestock in stall-fed condition. Livestock is a means of accumulating capital and acts as a social safety net. So, agriculture & its allied sector’s contribution to the State’s gross domestic product is one of the primary concerns.

Agriculture is the main economic activity of all the districts in the state. About 30% population of West, 37% of South & 64% each of East & North districts depend upon agriculture for their livelihood. In Sikkim, 76% women workers are directly or indirectly engaged in agriculture and allied activities.

According to Census 2001, there are 37,936 cultivators (About 26,000 of them are small/medium farmers) out of which 19,725 are males and 18,211 are females in East district. Of them 37,889 live in rural and only 47 live in urban area. In rural area 19,701 are males & 18,188 are females. Total number of agricultural labourers 8,143 out of which 4,076 are males and 4,067 are females. Of them 8,110 live in rural and only 33 live in urban area. In rural area 4,056 are males & 4,054 are females. There are 25,535 (which is 45% of the total) small land holdings i.e. < 1 Hectare, 13,076 (which is 24% of the total) medium land holdings i.e. between 1-2 Hectare and 17,587 (which is 31% of the total) large land holdings i.e. > 2 Hectare in the district. In total there are 56,198 land holdings in the district (Department of Agriculture).

In West district there are 35,764 cultivators (About 16,000 of them are small/medium farmers) out of which 20,634 are males and 15,130 are females. Of them 35,762 live in rural and only 02 live in urban area. In rural area 20,632 are males & 15,130 are females. Total number of agricultural labourers in the district is 4,112 out of which 2,389 are males and 1,723 are females. Of them 4,110 live in rural and only 02 live in urban area. In rural area 2,389 are males & 1,721 are females. There are 9,907 (which is 55.20% of the total) small land holdings i.e. < 1 Hectare, 4,502 (which is 24.18% of the total) medium land holdings i.e. between 1-2 Hectare and 4,213 (which is 22.62% of the total) large land holdings i.e. > 2 Hectare in the district. In total there are 18,622 land holdings in the district.

In North district there are 9,180 cultivators (About 6,000 of them are small/medium farmers) out of which 4,831are males and 4,349 are females. Of them 9,173 live in rural and only 07 live in urban area. In rural area 4,824 are males & 4,349 are females. Total number of agricultural labourers in the district is 2,051 out of which 1,045 are males and 1,006 are females. Of them 2,038 live in rural and only 13 live in urban area. In rural area 1,033 are males & 1,005 are females. There are 25,535 (which is 45% of the total) small land holdings i.e. < 1 Hectare, 13,076 (which is 24% of the total) medium land holdings i.e. between 1-2 Hectare and 17,587 (which is 31% of the total) large land holdings i.e. > 2 Hectare in the district. In total there are 56,198 land holdings in the district.

In South district there are 48,378 cultivators (About 20,000 of them are small/medium farmers) out of which 24,917 are males and 23,461 are females. Of them 48,377 live in rural and only 01 live in urban area. In rural area 24,917 are males...
only 7 families in the district. A population into secondly because of the policy of the State Govt. The state Government has also announced the Poultry farming is undertaken on small scale by small farmers & females in rural area 1,252 are males & 1,442 are females. All of them live in rural and no one live in urban area. In rural area 1,252 are males & 1,442 are females. There are 12,883 (which is 55.57% of the total) small land holdings i.e. < 1 Hectare, 5,759 (which is 24.84% of the total) medium land holdings i.e. between 1-2 Hectare and 4,540 (which is 19.59% of the total) large land holdings i.e. > 2 Hectare in the district. In total there are 23,182 land holdings in the district.

In a predominantly rural economy such as Sikkim, animal husbandry activities form an extremely important element in the effort to bring about substantial improvements in living standards. In hilly areas, availability of land for agricultural practices is not sufficient. Most of the land is occupied by forests & pasture lands. On the other hand, burden of population on agriculture is tremendously increasing. The overall area available for agriculture operations in Sikkim is limited to about 15% of the geographical area of the state accompanied by small land holdings in the State as is seen in the above figures and secondly because of the policy of the State Govt., deforestation for the sake of agriculture is not allowed. So, with the increasing population, per capita land availability has been consistently declining. It is therefore, essential, that supplementary sources of income be developed in order to provide not only the much needed support to the rural families but also to make available an increasing quantity of protein rich food items such as milk, egg and meat. Adequate number of livestock like cows, pigs, sheep, goats, yaks and few other are reared in Sikkim and their number is increasing over a period of time especially of small animals. As we can see from the Table 1 below, there is an almost 50% increase in the population of pig, goat and poultry from the census 1997 to census 2003.

**TABLE I: - LIVESTOCK POPULATION**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Livestock</th>
<th>Census-1997</th>
<th>Census-2003</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cattle</td>
<td>143024</td>
<td>160932</td>
<td>12.52</td>
</tr>
<tr>
<td>2</td>
<td>Buffaloes</td>
<td>1970</td>
<td>2118</td>
<td>07.51</td>
</tr>
<tr>
<td>3</td>
<td>Sheep</td>
<td>5023</td>
<td>5746</td>
<td>14.39</td>
</tr>
<tr>
<td>4</td>
<td>Pigs</td>
<td>26975</td>
<td>40938</td>
<td>51.76</td>
</tr>
<tr>
<td>5</td>
<td>Goats</td>
<td>82980</td>
<td>123841</td>
<td>49.24</td>
</tr>
<tr>
<td>6</td>
<td>Poultry</td>
<td>219552</td>
<td>321919</td>
<td>46.63</td>
</tr>
<tr>
<td>7</td>
<td>Yak</td>
<td>4731</td>
<td>5719</td>
<td>20.88</td>
</tr>
</tbody>
</table>

Source: Department of AH & VS, Govt. of Sikkim

Dairy farming, piggery, sheep rearing & goatery are the traditional activities in the state, which fulfill the demand for milk, wool, mutton & pork as well as to improve the socio economic condition of the people of the state. Poultry farming is undertaken on small scale by small farmers & SHGs. The state Government has also announced the Poultry Mission, 2009-2012 with provision of subsidized inputs, development of infrastructures etc.

RESEARCH METHODOLOGY

**Universe or population**

The universe or population for the study consisted of total number of married females in rural areas who are employed in farming in the state of Sikkim. This formed the pivotal point of the present research.

**Sampling method for selected area of study**

Multi-stage stratified random sampling technique of probability method is used to distribute the population into circles, revenue blocks and villages, then a combination of Judgment and Convenience sampling techniques of non-probability methods is decided upon for this study. Non-probability methods are of three types, namely Judgment sampling, Convenience sampling and Quota sampling. The state has only four districts; so, all of them have been taken for the study. Initially, under the multistage stratified random sampling technique- a selection of a tentative list of circles & revenue blocks from all the four districts was made followed by a selection of villages to be visited at the second and a selection of respondents at the final stage. A final list of the respondents from different farm households was prepared based on convenience and their accessibility to the researcher by stratified random sampling.

**Sample size**

Rural areas from all 4 districts of Sikkim were selected. As is clear from the table II below, though North district contains maximum area of the State i.e. almost 60%, but it holds only 7-8% of the population. On the contrary East district contains only 13% area of the State, but it holds maximum i.e. 45% of the population. Therefore, for this study, maximum no. of females for data collection is from East & minimum are from North.

Here, the size of the sampling female farmers from each district is neither proportional to the minimum size of the sampling female farmers of the district nor in the same ratio as is the percentage ratio of each district to the total population of the state. But the sample size of each district is just an indicative of the reason of taking maximum/minimum sampling units from that area.

A data collected from a total of 24 circles from all the four districts in Sikkim has been analyzed. The district wise i.e. (East, West, North & South) distribution of circles selected is 6, 6, 4 & 8 respectively. A total of 80 females of farming community from East, 30 from North and 60 each from West & South districts have been interviewed. Data for 115 samples (50% of 23,460, which is 24.84% of the total) of 2012 with provision of subsidized inputs, were collected by the researcher herself, while for rest of 115 samples (40, 30, 15 & 30 from East, West, North & South respectively), data were collected with the active help and participation of all the village heads.

**TABLE II: - SELECTION OF SAMPLE SIZE**

Data thus collected from 230 married females in rural areas in the state of Sikkim, employed in farming sector has become the basis of the Primary Data analysis in this Study.

Data collection and analysis

In order to collect qualitative data, three group discussion sessions were arranged separately in each of the villages; with each group having 10 participants. During these group sessions, several open-ended questions were asked from the respondents in order to collect deeper information about their accessibility to resources & their participation in different farms & related activities along with many hidden facts and factors. Based on this information, the research instrument i.e. questionnaire containing dichotomous, multiple choice and open ended questions was designed and a pre-test was conducted on 18 respondents for its necessary modification. For the convenience of the farming population, the questionnaire was then translated into the local language Nepali. Primary data was collected by the researcher by visiting the females employed in farming sector in rural areas in Sikkim, using questionnaires. The primary data was collected between March to September 2011 from all districts of Sikkim.

Books, journals, reports and internet documents were used as secondary sources of data supporting or supplementing the empirical findings of the study.

Data analysis

Possession & Gender-wise ownership of domestic animals was measured and analyzed using the Statistical Package for the Social Science (SPSS) and some descriptive statistics, such as percentage to interpret the data. There is only one sample in the study. Ordinal and nominal level data can be analyzed using parametric statistics; therefore One-Sample T-test for inferential interpretation of the data has been run to understand the nature of relation between the variables. For the inferences of the hypotheses, information from literature survey is taken to support some assumptions.

MEASURING POSSESSION & GENDER-WISE OWNERSHIP OF DOMESTIC ANIMALS

Cattle

Over the last few years, there has been an increasing trend towards rearing cross bred cows which give high milk yield. It is an important source of organic manure for crop production, which holds a great importance especially in the state of Sikkim, which is striving towards becoming an organic state.

Rural agriculture economy depends on symbiosis of crop & livestock production. In view of continuously declining area for agriculture & small size of land holdings, livestock production plays an important role in providing sustainable income to the rural masses. Therefore, the major cattle development activities undertaken in the state are – livestock production through artificial insemination using frozen semen & natural services for production and procurement of high quality cross bred breeding cows & bulls. Due attention is also given on enhancement of feed & fodder production, pasture development, conservation of fodder through conversion into silage & hay. More emphasis is given in providing better health care to the livestock by increasing diagnostic services & development of bio-technical tools, manpower & skill development.

Bullock

Since mechanized farming is difficult in the state because of the hilly terrain, bullocks are widely used both for cultivation and other agricultural operations. So, these are reared by those farmers who can afford them.

Piggery

There is a high demand of pork by the local people. So, is the growth potential for piggery development. Piggery is the most suited activity for commercial exploitation because of the following advantages:-

• Faster multiplication
• Faster growth
• High carcass return of 60 to 80%
• More environmental friendly as grazing is not involved

Sheep and Goat

These have a tremendous scope for development in Sikkim. Sheep is mainly reared in West & North districts. Goatery is a very popular economic activity in the state. Goats are reared in stall-fed condition. The state has two important breeds of goat- Black Bengal & Betal. Both breeds are small in size but are famous for their meat quality all over India. Though, it is an important source of income for over 60% of the masses, no official policy for their breeding and development has yet been articulated by the Government. Government prefers stall fed condition of goatery as grazing by goats causes ecological damage.

Poultry

It is the fastest growing activity in animal husbandry section, which not only provides portentous food but also gainful employment to the people & helps in supplementing their
income. There is an increase in the demand of poultry products due to increase in the standard of living of the people, increase in the floating population with the development of tourist industry, presence of army & paramilitary forces in the state who are the largest consumer of poultry & poultry products and with the increase in the working population in secondary & tertiary sector.

Government of Sikkim has launched a programme named ‘Poultry Mission 2009-12’ to develop eco friendly poultry industry for providing sustainable livelihood & for the state to become self-sufficient in the poultry meat production. The State Government has set up mother units under a centrally sponsored scheme for poultry development in which day old chicks of low input birds are reared up to four weeks in the mother units and supplied to the beneficiaries.

WOMEN AND THE STATUS OF POSSESSION & GENDER-WISE OWNERSHIP OF DOMESTIC ANIMALS

Cow

Data pertaining to milch livestock possession did not show even a single respondent who was not found rearing milch livestock. The majority of the farmers in the state are small & landless labourers who are not able to afford rearing of working bullocks. They are however, able to rear one/two cows/buffaloes within their limited resources. Maintaining these animals does not demand much effort & burden to them as normally the crop residues like cereal and legume crop straws, husk and grass which is the main source of feed to these animals gets available from their farms & vicinity area to majority of the respondents who rear them. In the table III, it was found that a vast majority of the sample female farmers i.e. (84%) were rearing milch cattle equivalents of 3 or below. Only 16% were having more than 3 cattle. The findings are in close agreements with those of Kurup (2001).

As far as ownership of milch animal is concerned, 46% of the sample female farmers respondents reported that male members were the owners and a very meager i.e. only 15% of the respondents were female owners & 39% were holding the joint ownership of the animal.

Bullock

In the table III it was found that a considerable amount of the sample female farmers i.e. 78% did not at all possess bullocks. Very few of them i.e. only 5% were rearing only one, 14% - two, 2% - three and only 1% was found rearing this animal. Ownership data for this animal showed that 22% of the respondents reared it and 100% male ownership for this animal was spotted.

Pig

It was located in the table III that almost half of the sample farmers 49% did not possess it at all. But, 44% of them stated rearing one/two pigs. Further, 3%, 2%, 1% and 1% of the respondents reported rearing three, four, five and six pigs respectively. Ownership data for those respondents who reared this animal showed that 66% male members were the owners and a very skinny i.e. only 11% of the respondents were female owners & 23% were holding the joint ownership of the animal.

TABLE III: - STATUS OF POSSESSION & GENDER-WISE OWNERSHIP OF DOMESTIC ANIMALS OF SAMPLE FEMALE FARMERS OF SIKKIM

<table>
<thead>
<tr>
<th>Status</th>
<th>Number owned</th>
<th>Cow</th>
<th>Bullock</th>
<th>Pig</th>
<th>Goat</th>
<th>Poultry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of</td>
<td>No. of</td>
<td>No. of</td>
<td>No. of</td>
<td>No. of</td>
<td>No. of</td>
</tr>
<tr>
<td></td>
<td>Percent (%)</td>
<td>Percent (%)</td>
<td>Percent (%)</td>
<td>Percent (%)</td>
<td>Percent (%)</td>
<td>Percent (%)</td>
</tr>
<tr>
<td>Don’t own</td>
<td>00</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>80</td>
<td>78</td>
</tr>
<tr>
<td>Male</td>
<td>100</td>
<td>46</td>
<td>50</td>
<td>100</td>
<td>78</td>
<td>66</td>
</tr>
<tr>
<td>Female</td>
<td>35</td>
<td>15</td>
<td>00</td>
<td>13</td>
<td>11</td>
<td>30</td>
</tr>
<tr>
<td>Both</td>
<td>89</td>
<td>39</td>
<td>00</td>
<td>27</td>
<td>22</td>
<td>64</td>
</tr>
<tr>
<td>Total</td>
<td>230</td>
<td>100</td>
<td>100</td>
<td>230</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Gender-wise ownership</td>
<td>230</td>
<td>100</td>
<td>100</td>
<td>230</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Goat

As is evident from the Table III that 51% of the respondents did not possess any goat, whereas 4% possessed one, 11% two, 06% three, 08% four, 07% five, 02% six, 02% seven, 02% eight and 07% possessed ten & above. About 17% of female respondents were deprived of ownership of goat either singly or jointly i.e. 17% respondents had male ownership, while 26% respondents reported that they owned the animal.

Poultry

Data for poultry in the Table III showed that only 20% did not own any while 02% possessed one, 04% two, 04% three, 09% four, 13% five, 05% six, 06% seven, 03% eight, 02%
nine and 32% ten & above. Ownership data for the animal showed that vast majority of female respondents i.e. 73% owned it.

**INFERENTIAL ANALYSIS**

One sample T-test is conducted to test our hypothesis.  
**Hypothesis Statement** – There is discrimination in ownership of livestock of women.  
Ha – Ownership of livestock by women is not more than that of men.  
Ho - Ownership of livestock by women is more than that of men.

To test the hypothesis for Ownership of livestock by farming females of rural area, one-sample T test is conducted. The t column in table- V displays the observed t statistic for each sample, calculated as the ratio of the mean difference divided by the standard error of the sample mean. The details are given in table- V.

The column labeled Sig. (2-tailed) displays a probability from the t distribution with 229 degrees of freedom df, calculated as (n-1). The value listed is the probability of obtaining an absolute value greater than or equal to the observed t statistic, if the difference between the sample mean and the test value is purely random. The Mean Difference is obtained by subtracting the test value (which is 2 here in this table), from each sample mean. Test statistic 2 represents ownership of both (male and female). More than 2 mean female ownership & less than 2 means male ownership.

The 95% Confidence Interval of the Difference provides an estimate of the boundaries between which the true mean difference lies in 95% of all possible random samples of 230 females. At this level value of T should be less than 1.96. If it is less than 1.96 then our null hypothesis is accepted else alternate hypothesis is accepted.

A1, B1 C1, D1 and E1 in the (tables- IV & V) below, represents Ownership of livestock namely - Cow (A1), Bullock (B1), Pig (C1), Goat (D1), Poultry (E1).

Statistics for Ownership of livestock by farming females of rural area namely - Cow (A1), Bullock (B1), Pig (C1), Goat (D1), Poultry (E1) has been given in table- IV. From the table we find that there are 230 valid scores and values of mean for them are 1.69 Cow (A1), 0.21 Bullock (B1), 0.74 Pig (C1), 1.03 Goat (D1) and 2.13 Poultry (E1) respectively. Standard deviation is 0.721 Cow (A1), 0.410 Bullock (B1), and 0.876 Pig (C1), 1.146 Goat (D1), 1.196 Poultry (E1) and standard error of mean is 0.048 Cow (A1), 0.027 Bullock (B1), 0.058 Pig (C1), 0.076 Goat (D1), 0.079 Poultry (E1).

<table>
<thead>
<tr>
<th>TABLE IV: - ONE-SAMPLE STATISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>Q1.1A1</td>
</tr>
<tr>
<td>Q1.1B1</td>
</tr>
<tr>
<td>Q1.1C1</td>
</tr>
<tr>
<td>Q1.1D1</td>
</tr>
<tr>
<td>Q1.1E1</td>
</tr>
</tbody>
</table>

From the table table- V we find that value of T for ownership of Cow (A1), Bullock (B1), Pig (C1), Goat (D1), is -6.492, -66.042, -21.745, -12.830 respectively which less than 1.96 is and also negative. Mean difference column for them also shows negative values. Confidence intervals lie entirely below 0.0 for them, thus there are valid reasons for null hypothesis to be accepted for them, which says that Ownership of these livestock by women is significantly not more than that of men i.e. not more than 2 on the average.

For the ownership of Poultry (E1), we find that confidence intervals do not lie entirely either above or below 0.0. Its value is positive for one limit and negative for the other limit. The value of T is 1.599, which is though lower than 1.96 but significance level is 0.111, which is greater than 0. But, if we look at the mean difference column, we find that for ownership of Poultry (E1), it is positive and also the upper limit of the confidence interval lies entirely above 0. Besides, the magnitude of upper limit is more than the magnitude of the lower limit. Consequently, we can say that our null hypothesis is rejected and alternate hypothesis is accepted. Female ownership for the Poultry (E1) is there.

**CONCLUSION**

The data in Table III showed gender disparities in livestock ownership, with women owning only 15, 0, 11, 26 and 73 per cent, and men 46, 100, 66, 17 and 07 per cent of cow, bullock, pig, goat and poultry respectively. Women owned fewer cows, pigs, goats, no bullocks but relatively more of small animals i.e. only poultry than men. Similar findings have been reported in the Gambia, where women own 67 per cent of goats and 52 per cent of sheep (Jaitner, et al., 2001). One more study also showed that women play an important role as keepers of small animals, sustainer of household food security and in improving health and livelihoods of families, although they faced more difficulties than men in gaining access to resources such as land, credit and other productivity enhancing inputs and services (Sinn et al., 1999). However, men dominated the ownership of bullock, pig and cow while women own the low-value small animals, such as goats and poultry. Female participation dominance was there in most of the activities like feeding of animals, watering of animals, milking & milk disposal. But, the extent of accessibility for rarely, sometimes, frequently & always was (96%), (58%), (25%) & (11%) respectively. They do participate in decision making of selling of milk/poultry items but dominance of men was found in
decision making of selection of breed of animals, purchasing/selling of livestock & procurement of dry fodder from the market. The main reason behind this is that women had little access to market, so, market related activities remained under men’s control and hence, women were deprived of getting real benefits from livestock. Male participation dominance was seen in the activities like vaccination and visits to animal hospitals, breeding of animals & health care of animals. The lack of cattle ownership and equal access to land and other production resources have made women poor and socio-economically insecure.

Besides for material benefits, the respondents, however, reported that rearing cattle, goats, pigs and poultry had also helped in their consumption of nutritious food as well as rearing them helped in integrated farming. Similar trend, that animals/livestock were primarily kept to produce milk for family consumption was observed by Ram et.al. (2009) . The findings are also in agreement with Annamalai (2005) who stated that small, marginal farmers and the landless labour wanted to keep cows in lieu of bullocks. The farmers always take holistic view and are good example of systems manager who has to make decision on variety of factors (Kumar et al., 2000).

SUGGESTIONS

In view of the fact that rural women traditionally play a very important role in raising livestock & in most cases they are solely responsible for goat, sheep, poultry and other animals kept near home. Besides, it is easier to operate a productive enterprise with smaller animal and initial costs are lower. Profits may be low, but so are risks. At this point, it is suggested that the decision making authority about the animals they manage should be with the women only. Surely, women benefit most when they have decision making authority about the animals they manage even without legal ownership rights. Needless to mention here that women would be willing to work even harder if they could earn some more money from the livestock they manage.

For most of the farmers animal husbandry rearing was a complementary activity to farming. Since they make their own concentrate mixture, so, feeding purchased concentrate mixture was not very much reported by most of the sample farmers. As many researches have proved that feeding concentrates can enhance productivity of animals. Hence, there is need to popularize the notion of locally available agricultural by products feed concentrates but balanced one, is very important for increasing the productivity of animals. Under similar mixed farming system Alam et.al (2000), also had recommended innovation of simple and sustainable technologies and their promotional services at the farmer’s level to improve rearing systems in Bangladesh. One way in this direction would be utilizing the same by products with little or no additional inputs. By educating the farmers to prepare their own balanced concentrate mixture will not appear as an extra burden for them, while at the same time will help them in enhancing the productivity of animals.

A productive agricultural economy relies upon a well prepared agricultural workforce (Samy, 2003) and sound & healthy livestock capital base. These are of potential importance not only to the farmers, but also to animal welfare, public health & food supply. To address that concern for Sikkim’s economy, it is important that Small and marginal farmers should have access to high-quality educational programs to enhance their knowledge as well as income. Hence, extension programme/information/sources to educate the farmers, related to animal health to ensure the continued productivity of livestock is of potential importance (Jensen, English, & Menard, 2009). However, many small farmers fail to exploit fully this limited natural resource because they lack the necessary small farm & livestock best-management practices/skills to successfully manage or operate it. In addition, these small owners are often unaware of available training and counseling support provided by agriculture extension organizations. As a result, many farmers fail to take advantage of resources that are designed to help them succeed. Research has shown that participation in relevant and effective training can reduce the failure rate and help owners make better management decisions and avoid costly mistakes (Muske & Stanforth, 2000). As the terrain of the hilly State is sloppy, hence livestock production through mobile artificial insemination units using frozen semen would prove to be very beneficial to remotely located locality. In the absence of mechanization, bullocks are widely used for ploughing. So, supply of good quality bullocks through bull rearing farms would be of great help to the farmers using them.

Development of secondary and tertiary sector is leading to a spur in urbanization in the State. This is consequently triggering the demand for milk/milk products/ and poultry/meat. Increase in the demand has led to increase in their prices. While milk is sold at rupees 32/Kg in the urban markets, the resource poor female farmers, unknowing about the worth of their produce, still selling milk locally at almost half the prices i.e. rupees 17-20/Kg in remote and inaccessible areas. Since most of the maintenance needs of the cattle of the farmers are managed at their own farm level, so, this much price of the milk is also making some amount of profit to them. Cattle rearing are neither seasonal like farming, nor it gets affected by drought or floods. This is the reason that along with farming dairy farming forms the second or third largest economic activity in the country (Parthasarathy Rao et al, 2004). Along with organically producing the agriculture products, it ensures sustained source of income to small and medium land holders. Hence, it is very important to suggest that market accessibility to the female farmers is of utmost importance to make them aware about the prevailing prices, so that they can get the best of their produce which sequentially will help in improving their socio-economic condition. In this context, creation of infrastructure in the form of better roads/tracks connectivity and milk co-operative societies for milk collection in rural inaccessible areas is also the suggestive activity, which will help immensely in getting the correct rates of their product. However, streamlining is required to enable women to have equal access to production resources, extension, education and other services to gain skills on modern livestock production technologies.
REFERENCES

Annamalai, S.J.K. (2005); Long-term Strategies and Programmes for Mechanization of Agriculture in Agro Climatic Zone-X: Southern Plateau and Hills region. In report of the project. “Study relating to Formulating Long-term Mechanization Strategy for each Agro Climatic Zone/State” Indian Agricultural Statistics Research Institute, New Delhi, 201
Kumar, S., Chander, M. and Harbola, P.C. (2000); Livestock based farming system – A case study of Kumaon hills, Himalayan Ecology & Development Vol. 8, (2)
Parthasarathy Rao, O; Birthal, P.S; Kar, D; Wickramaratne and Shreshita, H.R. 2004. Increasing livestock productivity in mixed crop livestock systems in south Asia, ICRISAT, Hyderabad, India
Ram, S., Tripathi, A. and Shankar, R. (2009); Investment pattern in crop – livestock production system in Gonda district of Uttar Pradesh, Agricultural Science Digest, 29 (1)