

Bundelkhand Rural Poverty Alleviation Initiative (BRPAI) - ABSSS



Study of livestock ownership and management practices Tikamgarh block, Tikamgarh district, MP March 2013

Supported by: Sir Dorabji Tata Trust and Allied Trusts

Eruchshaw Building, 249 D N Road, Fort,

Mumbai 400001

Phone - (022) 66657042, Fax - (022) 66100484

Mobile - +91-9869066797

Web- <http://www.dorabjitatatrust.org/>

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Submitted by:



Akhil Bhartiya Samaj Sewa Sansthan (ABSSS)

Bharat Janani Parisar

Village- Ranipur Bhatt, Post- Chitrakoot (Sitapur);

District- Chitrakoot (U.P.) INDIA 210204

E-mail: info@absss.org.in; absssinfo@gmail.com;

Website: www.absss.org.in; www.bundelkhandinfo.org

Telephone No. - 05198-224025; 026; 027

Mobile Number: +91-9415310662, 9450221331

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Executive Summary

This study was conducted under the Bundelkhand Rural Poverty Alleviation Model” (BRPAM) development Project, implemented in 40 villages of Tikamgarh block of Tikamgarh district, MP. Of the 40 villages, 20 are selected for intensive intervention

The objectives of the study were:

- To understand livestock ownership patterns, role of different livestock types in livelihoods basket of Project’s target group households (HHs), and constraints faced by them for maximizing benefits from livestock
- To understand livestock management practices of HHs
- To ascertain HHs’ knowledge gaps in scientific livestock management, and
- On basis of above, identify issues for Project intervention and topics for orientation, training and capacity-building programmes so as to optimize benefits from livestock

Information was obtained from (i) a baseline survey (ii) in-depth survey of 100 HHs (iii) an in-depth survey of 30 livestock-owning HHs (iv) group discussions conducted specifically for the purpose of this study, and (v) some desk research on livestock ownership in rural India, and Bundelkhand in particular.

Data from the in-depth survey of 100 sample HHs indicates that the number of animals per 1000 persons is 586. This indicates that there has been a drastic reduction in livestock population, compared to the earlier ‘Bundelkhand norm’ of 1000 animals per 1000 persons. The distribution of livestock population broadly follows the pattern in the district as a whole, with local cows and bullocks accounting for 54% of total animal population, followed by goats (23%), buffaloes (12%) and poultry (11%).

It was seen that while all small farmers owned some animal, nearly 10% of marginal farmers and 16% of semi-medium farmers did not own any animal. This indicates that there is no simple and direct co-relation between land owned and ownership of animals. There however significant co-relation between animal-type owned and land holding. Ownership of bullocks, used for draught operations, is linked to amount of land owned. Likewise, the more the land owned by an HH—and hence, the higher its economic status (generally)—the more are the number of buffaloes owned. On the other hand, ownership of goat and poultry is inversely linked to land owned, with marginal farmer HHs having more of these animals. It is also clearly seen that social category is a major determinant of type of animal owned. The number of HHs owning cows or bullocks is much less in SC category than in OBC or ST category. Nearly a third of ST category HHs rear goats, which is almost double the proportion of SC and OBC category HHs.

Data on sale and purchase of animals shows that only chicken and goats are bought or sold regularly—in case of goats, even sale does not happen regularly, as the goats are slaughtered for meat on festive and ceremonial occasions. These findings suggest that

barring chicken, livestock in the Project area is looked at primarily as an asset that helps meet some domestic needs, or supports agriculture, rather than as source of income. This is confirmed by data on income from livestock. Data from the in-depth survey of 100 sample HHs shows that only 25% of HHs have any income from livestock, and average annual net income from this source is only around Rs 3,500.

The data on livestock management shows that:

- Stall feeding is not the norm for any kind of animal in any season; the norm is stall feeding+free grazing.
- Around 5% of cows live off only free grazing in Kharif and Rabi, and in summer, the proportion rises to 30%. Likewise, over 20% of bullocks live off only free grazing in summer.
- In a reversal of the above practice, free grazing of goats reduces in summer, and stall feeding increases
- Commercial feed is not given to goats or buffaloes, and given to only a small extent to cows and bullocks.

Data on HHs' perceptions of adequacy of feed in different seasons shows that:

- Around 15-20% of cows, bullocks and buffaloes get inadequate feed in Kharif and Rabi. However, most goats get adequate food in Kharif, when there is generally rich vegetation.
- In summer more than 50% of the cows and bullocks and around 40% of buffaloes get inadequate feed. Worst hit are goats, with roughly only 20% of animals getting adequate feed.

The majority of animals of any kind are not kept in a stall or shed. Only around a fifth of buffaloes have been vaccinated, dewormed or taken to a veterinary doctor when ill. In case of other types of animals, the proportion is even lower. No health management practices are followed with respect to poultry. Likewise, goats receive little attention.

Grazing/feeding is mainly done by women. Collection of dung is done almost entirely by women. Males generally handle commercial transactions like selling products and buying/selling animals.

Due to low milk production, and use of milk for domestic consumption, net annual income per cow is only Rs 3000-3500. Average daily milk production of buffaloes is also low, at 3 litres in peak period, and net annual income per buffalo is only Rs 4500-5000. As HHs prefer to slaughter goats to get meat for ceremonial and festive occasions, it does not constitute a significant source of income. For most HHs maximum annual income generally obtainable for HHs from sale of live chicken is less than Rs 2000. HHs are reluctant to invest in higher number of birds due to fear of illnesses, which lead to death of a large number of birds at one time.

It is seen that almost all HHs collect dung of cows, bullocks and buffaloes and around 70% of the dung is used to make manure, around 20% is used to make fuel cakes, and the rest is used for purposes like flooring of houses.

There is a large knowledge gap to be filled in subjects like vaccination, deworming and optimum feed.

The study shows that there is much need for improving livestock management and productivity in the Project area, through measures like:

- Increasing feed available for animals through cultivation of fodder crops and shrubs like ber (for goats) on bunds and fallow lands, and cultivation of coarse cereal crops which would meet food needs of HHs as well as their animals
- Establishment of village-level fodder banks
- Training programmes in making of concentrates like wheat bhusa and oil cakes, and Total Mixed Ration (TMR) for milch animals
- Improving health of animals through orientation programmes/camps on deworming, vaccination and for promoting use of optimum feed mixtures in different seasons according to age and kind of animal
- Promotion of construction of sheds/shelters for animals, particularly for use in summer
- Intensive training in backyard poultry
- Induction of superior breeds of goat like Jamnapari and Barbari with potential for higher meat production potential, as a first step for commercializing goat rearing
- Encouraging stall feeding of animals.

Introduction

Akhil Bhartiya Samaj Sewa Sansthan (ABSSS) is implementing a 3-year (2011-13) “Bundelkhand Rural Poverty Alleviation Model” (BRPAM) development Project in 40 villages of Tikamgarh block of Tikamgarh district, MP, with support from Sir Dorabji Tata Trust and Allied Trust. Of the 40 villages, 20 are selected for intensive intervention.

The goal of the Project is to:

“enhance the livelihood security and wellbeing of marginalised poor and women through sustainable natural resource management & better access over rights & entitlements”

Specific objectives of the Project include:

- To form and build capacity of community organizations especially of women and marginalised social groups for democratic realisation of entitlements.
- To enhance participation, savings, role and decision-making power of women in household and community development.
- To enhance income & living standards of the people of target group from land and agriculture through scientific natural resource management and improved agricultural practices & animal husbandry

To realise the third objective, the Project needs to have a sound understanding of existing income-earning activities of the target community, particularly from land and other natural resources. Hence, in 2011-2012, two separate value chain studies were initiated, to:

- To understand economics of cultivation of major crops, and identify scope for value enhancement
- To understand economics of income from tree produce and herbs, and identify scope for value enhancement

In 2012-13, the present study was initiated with focus on livestock ownership.

Objectives of the study

The objectives of the study were:

- To understand livestock ownership patterns, role of different livestock types in livelihoods basket of Project’s target group households (HHs), and constraints faced by them for maximizing benefits from livestock
- To understand livestock management practices of HHs
- To ascertain HHs’ knowledge gaps in scientific livestock management, and
- On basis of above, identify issues for Project intervention and topics for orientation, training and capacity-building programmes so as to optimize benefits from livestock.

Methodology

The study was conducted through focused group discussions (FGDs) and intensive interviews and surveys. To get data related to livestock ownership at the Project-area level, FGDs were conducted in some villages, along with an in-depth sample survey of 100 HHs, which covered several issues, including demographics, landholding, livestock holding, sources of income, annual HH expenditure for different purposes, and work done by women. This study was done in May-June 2012.

Subsequently, in October-December 2012, another in-depth study was done with the help of a detailed questionnaire in Hindi, to get details of livestock management practices and preferences and livestock-related knowledge levels of HHs. This in-depth study covered 30 randomly selected livestock-owning HHs in 14 villages/hamlets. Each respondent was intensively interviewed to get clear responses to different questions.

Both surveys were conducted by the Project's village-level workers after receiving due orientation and pilot testing of questionnaires. All data collected from different sources was analysed and results of the analysis were discussed internally. As necessary, data was re-collected and re-analysed.

The entire effort was conducted under the guidance of a development communications professional.

Earlier, the Project had conducted an exhaustive baseline survey, which provided information under broad heads about the Project area and the target group.

Thus, this report incorporates information obtained from (i) the baseline survey (ii) the in-depth survey of 100 HHs (iii) the in-depth survey of 30 livestock-owning HHs (iv) group discussions conducted specifically for the purpose of this study, and (v) some desk research on livestock ownership in rural India, and Bundelkhand in particular.

Project area

The 20 villages selected for intensive intervention under the Project are located in Tikamgarh block of Tikamgarh district, MP, at a distance of 20 to 40 km from Tikamgarh town, which is the headquarters of the district.

Tikamgarh district lies in the Bundelkhand plateau between Jamuni, a tributary of Betwa, and Dhasan rivers, in the northern part of MP. The northern part of Tikamgarh district is at height of about 200m above the mean sea level (amsl), while the southern part is at a height of around 300m. Thus, the district's topography is marked by a gentle slope from south towards north. The substratum of the entire district is composed of Bundelkhand granite and gneisses, which are profusely intruded by quartz reefs and pegmatites. Soils derived from parent rocks are of four types:

- coarse-grained reddish brown soils known locally as Rakar
- coarse-grained grey to greyish brown soils known as Parua
- clay loam black soils known as Kabar
- clayey-black soils known as Mar

Around 75% of the soil found in the district and the Project villages is of the Parua or Rakar variety. Soil tests conducted in the Project villages show that soil has normal pH and EC, low to medium organic-carbon content, low phosphorous content and low to medium potash content.

The climate of the area is characterized by a hot summer and general dryness except during the southwest monsoon season. The normal maximum temperature during the month of May is 41.8° C and minimum during the month of January is 7.0°C. The normal annual rainfall received is 1057.1 mm. However, **in 8 out of 9 years before the start of the Project (2002 to 2010), rainfall was below normal**, and in one year (2007), it was 50% below normal. Maximum rainfall (about 90%) is received during southwest monsoon period from June to September.

Tikamgarh is a predominantly rural district with urban population restricted to 30% of total population. Data on land use in Tikamgarh block reported in the 2006-07 District Statistical Handbook shows that nearly 60% of the land is cultivated, and of this, over 50% is under double cropping. **Only 5% of the land is under different categories of forestland.**

Tikamgarh district has a dry deciduous type of forest. While timber forest can be found along the banks of the Betwa and Jamuni rivers, the non-timber forest consists of tendu, seja, dhawa, gunja salai, mahuwa, baheda, palash, amla, bel and bamboo trees, along with some medicinal plants. In Sapon, one of the three Adivasi villages covered by the Project, the forestland is much in excess of the cultivated land.

A total of 2565 families live in the 20 villages/hamlets covered intensively by the Project. Of these, **30% belong to SC groups, 14% belong to ST groups and 56% belong to OBC groups.** The main SC groups are: Ahirwar, Vanshkar, Chadar and Khangar. The main ST groups are Saur and Gond. The main OBC groups are: Lodhi, Yadav, Kushwaha, Vishwakarma, Rai, Sahu, Raikwar, Napit and Patel. The general population (less than 1% of total) consists of a few Thakur, Jain and Brahmin families.

Half the villages have a significant ST population, and in 3 villages (Sapon, Sauryana, Basiyan Khera) and Haidarpur adivasi basti, the ST population is predominant.

Barring 6% of the total families in the 20 villages, all families own some agricultural land. However, 44% of the total families own less than 2.5 acres (1 ha) and another 38% own between 2.5 to 5 acres (1 to 2 ha). Thus **80% of the population comprises marginal and small farmers.** The in-depth survey of 100 HHs showed **a clear relation between social category and land owned, as average land owned by OBC HHs is 3.9 acres, while it is 2.8 acres for SC and ST HHs** (however, SC HHs have on average encroached on 2.7 acres of forestland, for which they had not got pattas, at the time of the survey).

Groundwater tapped through dug wells is the main source of irrigation in the entire Tikamgarh district, and the situation is the same in the 20 Project villages. Of the total

6823 acres of cultivable land, around 60% (4037 acres) is irrigated, and of this, around 67% is irrigated by privately-owned dug wells. Around 15% of the irrigated land is irrigated by tubewells, and 13% of the irrigated land is irrigated by lifting water from nallas or rivers.

The in-depth study of 100 HHs revealed that **wheat, soyabean and urad are the main crops** (in that order), with wheat providing the maximum net income (average around Rs. 18,000), followed by soyabean (Rs. 10,600). Though nearly half the HHs grow gram, usually with mustard, it is not a major source of income. A few HHs who have access to water in summer earn an average of Rs. 7500 from cultivation of vegetables. Otherwise, income from vegetables is marginal.

The in-depth study of 100 HHs revealed that almost all HHs do agriculture but it clearly does not meet needs, as **over 80% of HHs also do wage labour**. Around half the HHs are engaged in collection and sale of NTFP or fruits (primarily ber, which is found in the wild in large volume in the project area). **Comparatively, only a fourth of HHs are engaged in livestock rearing as a livelihood activity, though the majority of HHs own some livestock**. It is notable that **36% of HHs have at least one family member who migrates, usually for 6-9 months**, to seek wage labour outside the Project area. The proportion increases in drought years.

The Project villages are well-connected by road. Electricity is available in almost all villages, but supply is erratic. Weekly markets near villages are the main outlets for sale and purchase of produce. Near the Project area there are two large villages, Laar and Badagaon, with traders for all crops, tree produce and livestock products and animals.

1. Livestock ownership pattern

In traditional rural economies, livestock is an important asset that serves one or more of four main purposes:

- It provides a steady source of food and/or income.
- It is the source of the main raw material for manure.
- It provides draught power for agriculture operations.
- It is a relatively liquid source of capital: animals can be bought when a HH has funds to spare and sold when there is urgent need for money or when there is drought.

It is therefore not surprising that India has to have one of the largest populations of livestock in the world with nearly 185 million cattle, according to the 2003 Livestock Census. In addition, the country has 88 million buffaloes, comprising 58% of the world's buffaloes, and around 123 million goats.

Livestock rearing is perceived by some as a more pro-poor option than agriculture, as it is available to landless HHs also, if there are adequate common property resources or other sources of fodder. Further, irrespective of land holding, an HH can get some food or income from livestock, with much less capital investment than is required to acquire agriculture land. It is thus not surprising that although small and marginal farmers own only around a third of the total agricultural land in India, two thirds of livestock, particularly cattle, sheep/goats and poultry, are owned by small and marginal farmers and landless labour.

However, growth in livestock population is declining, compared to growth in human population. Studies show that while there were 749 livestock animals per 1000 persons of the rural population at the all-India level in 1992, the number declined to 654 in 2003 and was estimated to be 565 in 2007. The biggest reduction was in numbers of local (indigenous) cows and bullocks. While there was increase in number of crossbreds, there was little significant change in numbers of buffaloes, sheep or goats.

The declining population of local cows/bullocks and flat growth rate in population of buffaloes and goats is clearly linked to (i) increasing population pressure on agriculture land, which reduces opportunities to grow fodder crops (ii) diminishing common property resources (CPRs) (iii) higher agricultural risk and stress on small cultivators, forcing them to liquidate livestock assets (iv) increasing use of tractors and other farm equipment, which removes the need for using animals.

The declining population trend can be seen in Bundelkhand also. It used to be often said that there is more livestock than human population in Bundelkhand. This was certainly so till the 1980s—the total livestock population of the region in 1982 was 8.96 million, close to the Census 1981 human population figure for UP Bundelkhand + MP Bundelkhand. However, after the 1980s the livestock population growth-rate declined in comparison to the human population growth. According to the 2003 Livestock Census, the total livestock population of Bundelkhand was 11.39 million—around three-fourths the human population of the region in 2001 (15.5 million). A comparison of 2003 Livestock Census

of India figures with 1982 figures quoted in *Grassland & Fodder Atlas of Bundelkhand* [Raj Kumar Tyagi, Indian Grassland and Fodder Research Institute, Jhansi: 1997, p 142] shows that while overall livestock population in Bundelkhand increased by around 20% in this period of two decades, and population of buffaloes, goats and poultry increased, indigenous cattle population declined from over 51 lakhs to around 49 lakhs and population of sheep declined from 4.28 lakhs to 2.77 lakhs. It can be thus seen that HHs are increasingly feeling less need to maintain indigenous cattle, and sheep rearing is on the way out.

Nevertheless, there is a large ‘stock’ of indigenous cattle from the past, as can be seen from table 1.1, which shows details of livestock population in Tikamgarh district, according to the 2003 Livestock Census. Indigenous cattle accounts for 40% of the total livestock population.

Table 1.1: Breakup of livestock population in Tikamgarh district (2003)

Indicator	Data
Total livestock population	1081718
% crossbred cattle	0.22
% indigenous cattle	40.28
% buffaloes	16.82
% goats	26.07
% sheep	4.09
% pigs	0.68
% poultry	11.84

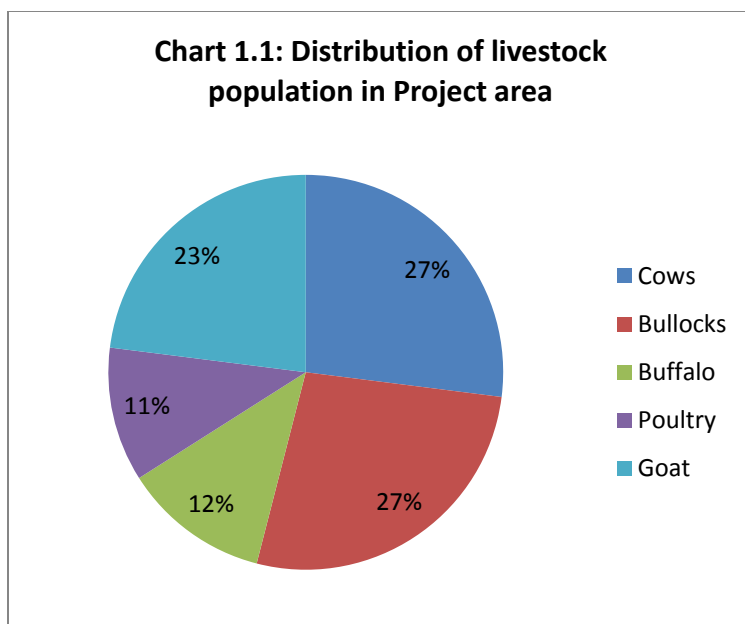
Livestock population in Project area

The in-depth survey of 100 sample HHs revealed that the HHs having a total of 625 members owned a total of 366 animals. Thus, number of animals per 1000 persons is 586. This indicates that **there has been a drastic reduction in livestock population**, compared to the earlier ‘Bundelkhand norm’ of 1000 animals per 1000 persons. Through FGDs, the following reasons were gathered for drastic reduction in livestock population:

- Lack of CPRs/common grazing lands in most villages/hamlets
- Continuous drought from 2005-05 to 2007-08, leading to distress sale and death of animals

Details of livestock population obtained from the sample of 100 HHs reveals that distribution of livestock population (Chart 1.1) broadly follows the pattern in the district as a whole, with local cows and bullocks accounting for 54% of total animal population, followed by goats (23%), buffaloes (12%) and poultry (11%). It is noteworthy that:

- The number of HHs owning sheep (1 HH) is negligible.
- **No HH owns crossbred cows.**



Animal ownership by land holding

To understand the link between ownership of animals and type of animals and land holding, we used data from the in-depth study of 100 HHs. Excluding data from landless HHs and HHs owning more than 10 acres, which constituted insignificant numbers of HHs in the sample, data was analysed for HHs owning up to 2.5 acres (marginal farmers), HHs owning more than 2.5 acres but less than 5 acres (small farmers) and HHs owning 5 to 10 acres (semi-medium farmers).

It was seen that while all small farmers owned some animal, nearly 10% of marginal farmers and 16% of semi-medium farmers did not own any animal. This indicates that there is no simple and direct co-relation between land owned and ownership of animals. It appears that for some marginal farmers, the benefits from owning livestock are not significant. Likewise, a significant proportion of semi-medium farmers find no reason to own livestock, presumably because these farmers used mechanized equipment for agriculture operations, and find income from livestock marginal, compared to income from agriculture.

There however significant co-relation between animal-type owned and land holding, as shown in table below.

Table 1.2: Animal ownership by land holding

HH by land owning category	Average no. of animals per HH				
	<i>Cow</i>	<i>Bullock</i>	<i>Buffalo</i>	<i>Goat</i>	<i>Poultry</i>
Up to 2.5 acres (marginal)	1	0.7	0.2	1.1	0.9
2.5-5 acres (small)	0.8	0.8	0.5	0.8	0.1
5-10 acres (semi-medium)	1.1	1.3	0.5	0.7	0.1

It can be seen that ownership of bullocks, used for draught operations, is linked to amount of land owned. Likewise, the more the land owned by an HH—and hence, the higher its economic status (generally)—the more are the number of buffaloes owned. On the other hand, **ownership of goat and poultry is inversely linked to land owned**, with marginal farmer HHs having more of these animals. We can thus surmise that goat and poultry are more significant income sources for marginal farmers than for other categories of farmers.

These relations become clearer when we look at percentage of HHs of each land-owning category owning each animal-type, as shown in table below.

Table 1.3: Percentage of HHs, by land owning category, owning different animals

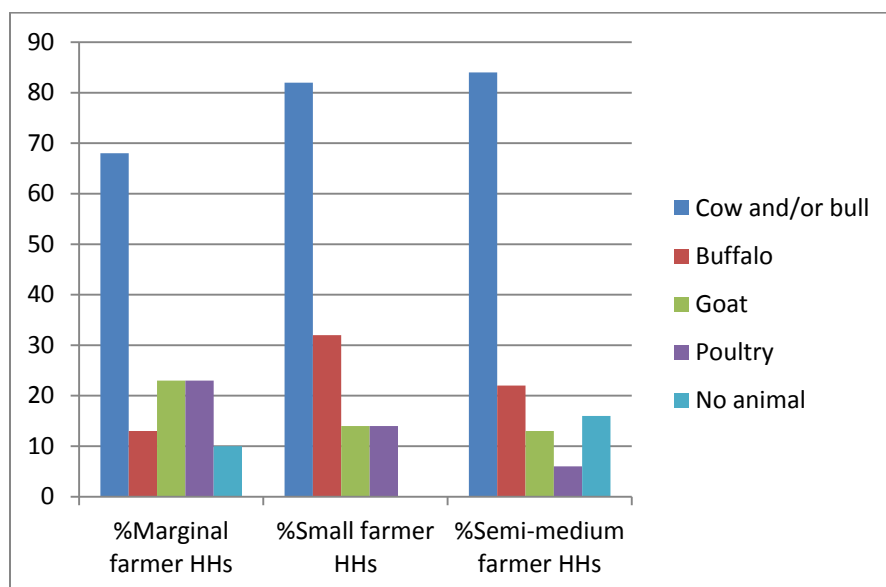
HH by land owning category	Cow		Bullock		Buffalo		Goat		Poultry	
	%HHs owning	Animals per owning HH	%HHs owning	Animals per owning HH	%HHs owning	Animals per owning HH	%HHs owning	Animals per owning HH	%HHs owning	Animals per owning HH
Up to 2.5 acres (marginal)	58	1.8	55	1.3	13	1.3	23	5	23	4
2.5-5 acres (small)	61	1.3	46	1.8	32	1.7	14	5.5	14	1
5-10 acres (semi-medium)	66	1.7	63	2.1	22	2.3	13	6	6	2

The table shows that proportion of buffalo-owning HHs is more among small and semi-medium farmers than among marginal farmers, whereas proportion of goat and poultry owning HHs is significantly more among marginal farmers. In case of buffaloes, the number of animals owned is also higher, with marginal farmers owning this animal owning an average of 1.3 animals, whereas small and semi-medium farmers owning this animal own 1.7 and 2.3 animals respectively. There is no significant variation in number of goats owned per HH, by land category, but number of poultry owned is higher per marginal farmer HH owning this animal. In case of cow and bullock ownership, the percentage of semi-medium farmer HHs owning these animals is significantly higher than in other land owning categories.

Notably, the data also shows (see chart below) that **nearly 33% marginal farmer HHs do not own a cow, bullock or buffalo, indicating that these HHs have no ready and free source of raw material for making manure or Jeevamrut**. Only 7% of small farmers and 9% of semi-medium farmers are so deprived.

The difference in animal ownership patterns by land-ownership category is graphically shown in the chart below.

Chart 1.2: % HHs owning different animals, by land-category



Animal ownership by social category

To understand the link between ownership of animals and type of animals and social groups, we used data from the in-depth study of 100 HHs. Excluding data from general category HHs, which constituted insignificant numbers of HHs in the sample, data was analysed for SC, ST and OBC HHs.

Table 1.4: Percentage of HHs, by social category, owning different animals

HH by social category	Cow		Bullock		Buffalo		Goat		Poultry	
	%HHs owning	Animals per owning HH	%HHs owning	Animals per owning HH	%HHs owning	Animals per owning HH	%HHs owning	Animals per owning HH	%HHs owning	Animals per owning HH
OBC	74	1.5	48	2	15	1.2	15	5	7.4	2
SC	39	2	33	2	20	2.3	14	6	12	6
ST	67	1.4	71	2	24	2	28.6	3.5	14	1.7

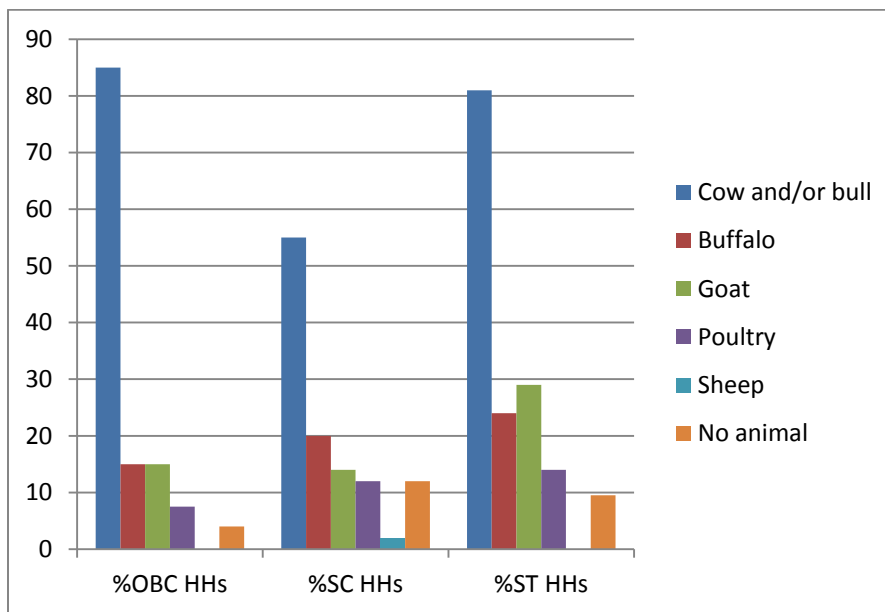
It is clearly seen that social category is a major determinant of type of animal owned, though the relation between social category and number of animals owned is less strong. The data in Table 1.4, confirmed by FDGs, shows that:

- **HHs owning cows or bullocks is much less in SC category than in OBC or ST category.** This is clearly linked to land ownership (higher among OBCs) and access to grazing land (higher among SCs, who live near forest lands). However, a fifth of SC HHs have tried to overcome their disadvantage in terms of land owned, by investing in buffaloes and stall-feeding these animals. On the other hand, with access to fodder resources from forestland, nearly a fourth of ST HHs have invested in buffaloes—significantly more than the proportion of OBC HHs.

- Due to their poorer economic status, and their access to forest lands, **nearly a third of ST category HHs rear goats, which is almost double the proportion of SC and OBC category HHs.**
- As eating non-vegetarian food is a more common practice among SC and ST HHs, the proportion of HHs of these categories owning poultry is significantly higher than among OBC HHs. (The relatively low number of poultry owned per SC HH was explained by the fact that some HHs lost a number of birds due to illness in the 12 months preceding the survey).

The difference in animal ownership patterns by social group category is graphically shown in the chart below.

Chart 1.3: % HHs owning different animals, by social-group category



Distribution of livestock population by age

Information about distribution of livestock population by age was obtained through an in-depth study of 30 livestock-owning HHs. Cows, bullocks and buffaloes owned by them were divided into three categories: (i) less than 1 year old (ii) 1-3 years old (iii) adults (over 3 years old). Goat population was divided into kids (less than 4 months old), young goats (4-8 months old) and adult male and female goats above 8 months old. The finding on pattern of distribution of animals by age-groups is shown in charts below.

Chart 1.4: Cows by age group

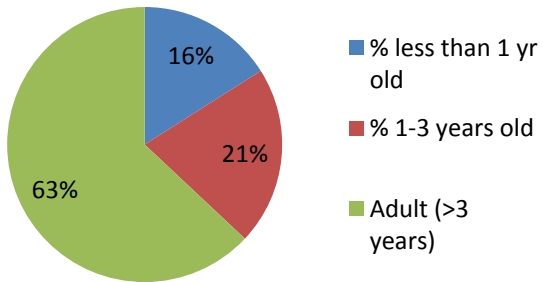


Chart 1.5: Bullocks by age group

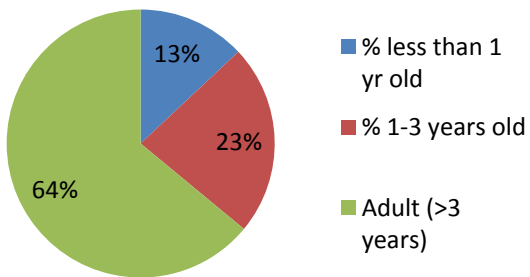
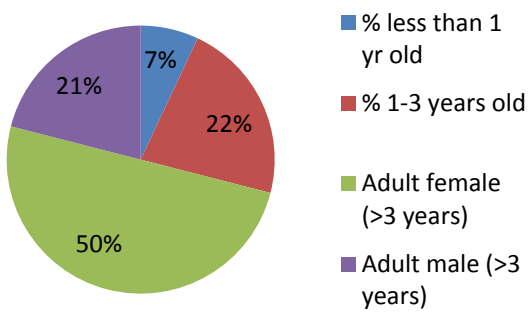
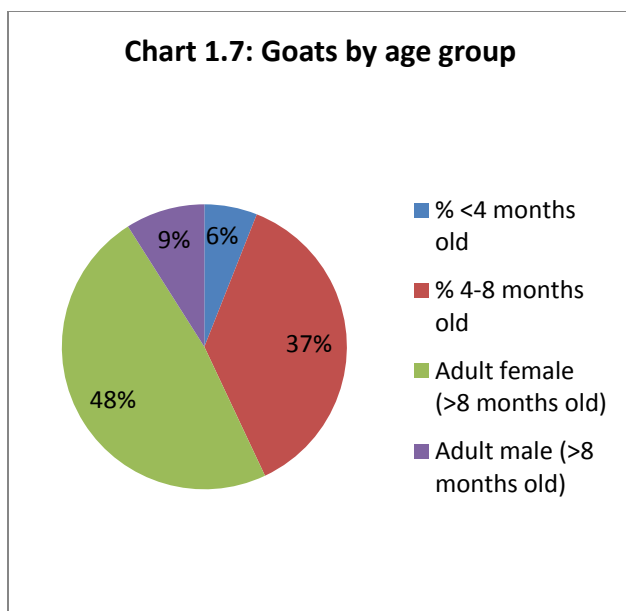


Chart 1.6: Buffaloes by age group





The data shows that:

- Nearly two-thirds of cows, bullocks and buffaloes are adults and nearly half the goats are adult females.
- However only 60% of cows and 50% of buffaloes are of lactating age, and of these many have “dried off”. At any given time, only 30-40% of cows and buffaloes are said to be producing milk.

Trends in livestock sale/purchase

Trends in livestock sale/purchase were ascertained through the in-depth study of 30 livestock-owning HHs, by gathering information about animals they had bought or sold in the previous 12 months.

Table 1.5: Sale/purchase of animals by 30 sample HHs in previous 12 months

Animal	Starting No.	Bought	Sold
Bullock	85	5	0
Local cow	65	0	0
Buffaloes	14	0	1
Goats	30	6	0
Chicken	56	26	28

The data in Table 1.5 clearly shows that only chicken and goats are bought or sold regularly—in case of goats, even sale does not happen regularly, as the goats are slaughtered for meat on festive and ceremonial occasions. A few HHs (~10% according to sample survey) buy adult bullocks for use as draught animal—in field or for bullock carts.

The fact that only chicken and goats are seen as “commercial” animals is confirmed by primary and secondary reasons given by HHs for acquiring or selling/giving away a particular kind of animal, shown in table 1.6 below.

Table 1.6: Primary and secondary reasons for acquiring or selling/giving away animal

Animal	Reason for acquiring		Reason for selling/giving away	
	Primary	Secondary	Primary	Secondary
Bullock	For use in agriculture	-	To get money to meet emergency needs	-
Cow	For milk, for domestic consumption	For sale	Not enough fodder	As religious donation. Illness of animal
Buffalo	For milk, for domestic consumption and sale	-	-	-
Goat	For meat, milk, for domestic consumption	For sale	To earn extra income	-
Chicken	For sale	For meat/eggs, for domestic consumption	To earn extra income	As religious donation.

The data clearly shows that:

- Only chicken are viewed as commercial investments.
- In case of goats, the reason for purchase is primarily to get meat or milk for domestic consumption and only secondarily to get additional income.
- Both bullock and cows are liable to be sold in distress conditions, but HHs are likely to retain buffaloes.
- As there is a high religious value attached to cows, there is some market for this animal.
- Cow milk is mainly used for domestic consumption.

These findings suggest that **barring chicken, livestock in the Project area is looked at primarily as an asset that helps meet some domestic needs, or supports agriculture, rather than as source of income.** This is confirmed by data on income from livestock.

Income from livestock

Data from the in-depth survey of 100 sample HHs shows that **only 25% of HHs have any income from livestock, and average annual net income from this source is only around Rs 3,500.** Only 2 HHs earned equal to or more than Rs 10,000 (maximum: Rs 12,000). It is significant that in both cases, net income from migration was substantially

higher, at Rs 15,000 and Rs 30,000 respectively. The low income is due to low number of poultry owned, and low milk production by animals, and use of milk for domestic consumption, as discussed later.

2. Livestock management practices

Through an in-depth sample survey of 30 livestock-owning HHs, information was obtained on the following aspects of livestock management: (i) feeding practices, by animal and season (ii) feed given to stall-fed animals, by animal and season (iii) quantum of feed for different animals in different seasons, according to gross HH estimations (iv) sources of water for livestock by season (v) animal health management practices (vi) and extent of involvement of adult males, adult females and children in different livestock-related activities.

Feeding practices of animals by season

Charts 2.1 to 2.5 show data on how total number of cows, bullocks, buffaloes, goats and poultry owned by HHs are fed in the Kharif, Rabi and summer seasons.

Chart 2.1: Feeding practice of cows by season

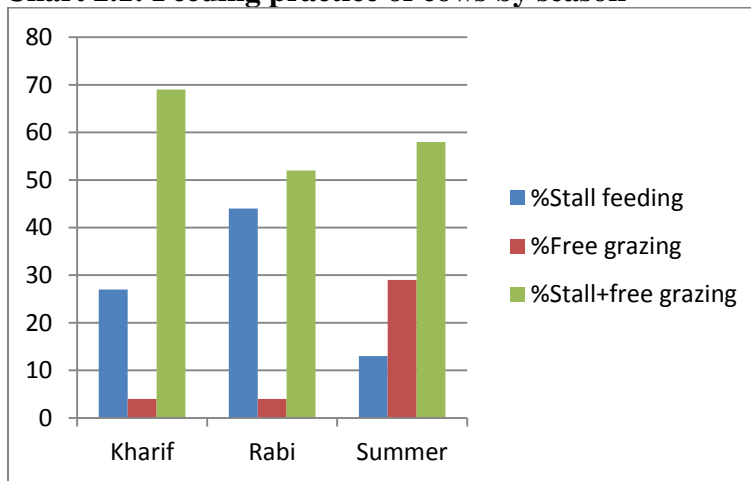


Chart 2.2: Feeding practice of bullocks by season

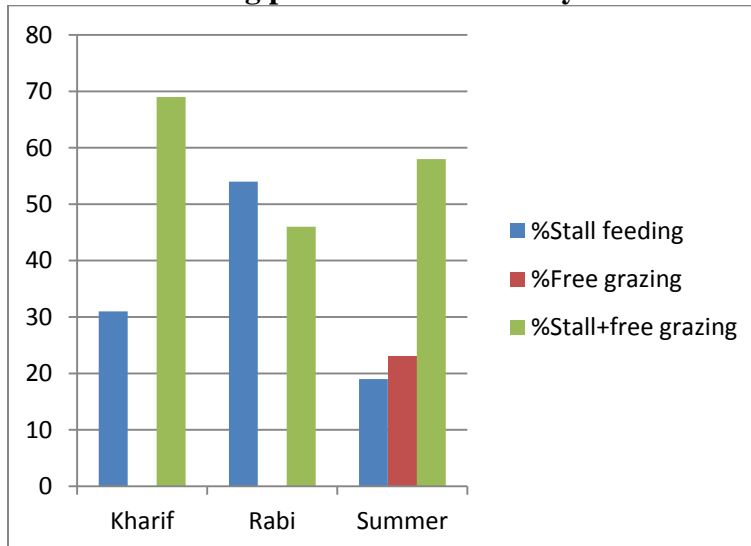


Chart 2.3: Feeding practice of buffaloes by season

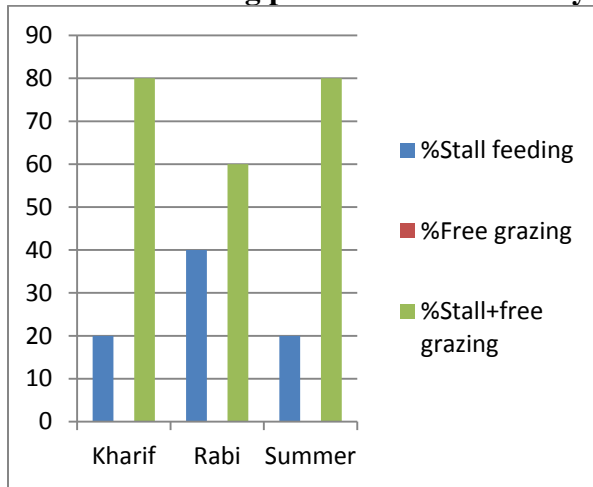


Chart 2.4: Feeding practice of goats by season

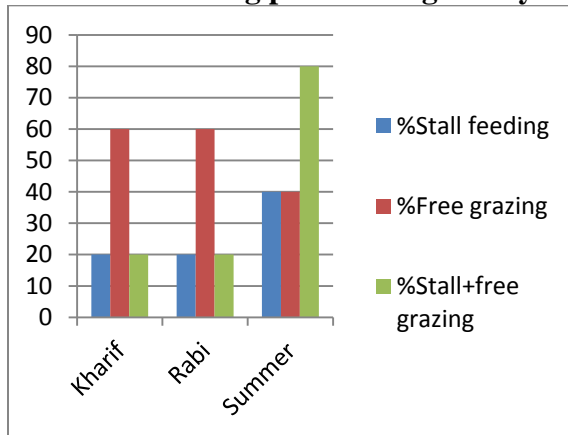
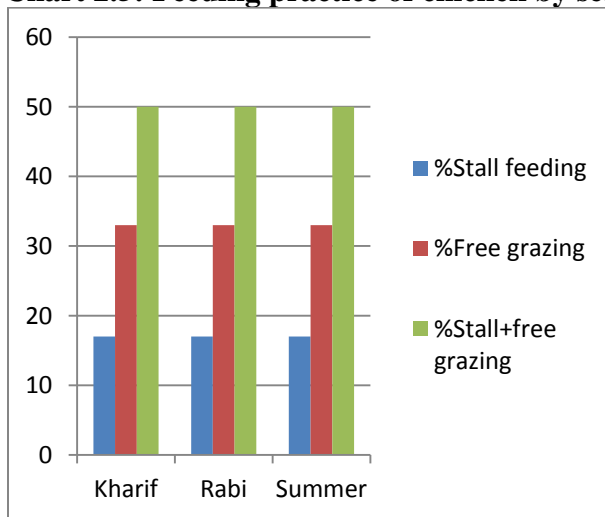


Chart 2.5: Feeding practice of chicken by season



The data shows that:

- **Stall feeding is not the norm for any kind of animal in any season** (the data for stall-feeding of bullocks in kharif appears to be an anomaly).
- For all animals except goats, stall feeding +free grazing is the norm in all seasons (the quantum of food obtained by animals through stall-feeding vis-à-vis food obtained from free grazing is difficult to estimate).
- Free grazing is the norm for goats, except in summer, when trees and shrubs have dried up.
- In no season do buffaloes generally live off free grazing only.
- **Around 5% of cows live off only free grazing in Kharif and Rabi, and in summer, the proportion rises to 30%. Likewise, over 20% of bullocks live off only free grazing in summer.**
- In a reversal of the above practice, **free grazing of goats reduces in summer, and stall feeding increases**. This is due to the low availability of goats' preferred food (discussed later) in summer.
- Feeding practice of poultry does not change significantly by season. The majority of birds are stall fed and allowed freely to procure food in all seasons. Less than 20% of birds are only stall-fed in all seasons.

The survey also found that only a fourth of HHs cultivate fodder crops, and less than 5% HHs grow berseem, the most important fodder crop in India.

Feed given to stall-fed animals

Charts 2.6 to 2.8 show percentage distribution of different kinds of feeds given to stall-fed animals in different seasons (gross percentages were obtained for each kind of stall-fed animal from respondents who stall-fed animals).

Chart 2.6: Distribution of feed-type given for stall-fed cows/bullocks, by season

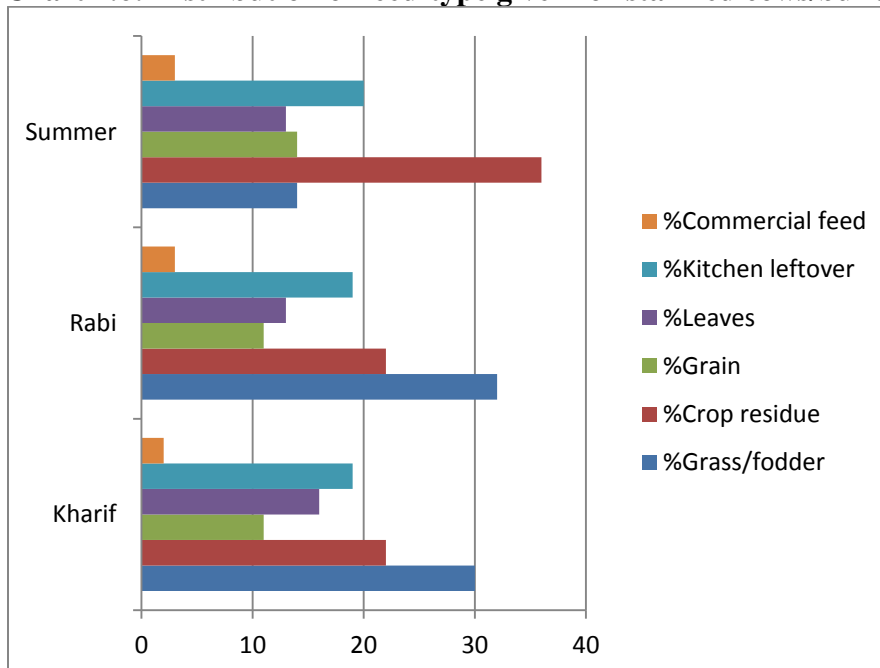


Chart 2.7: Distribution of feed-type given for stall-fed buffaloes, by season

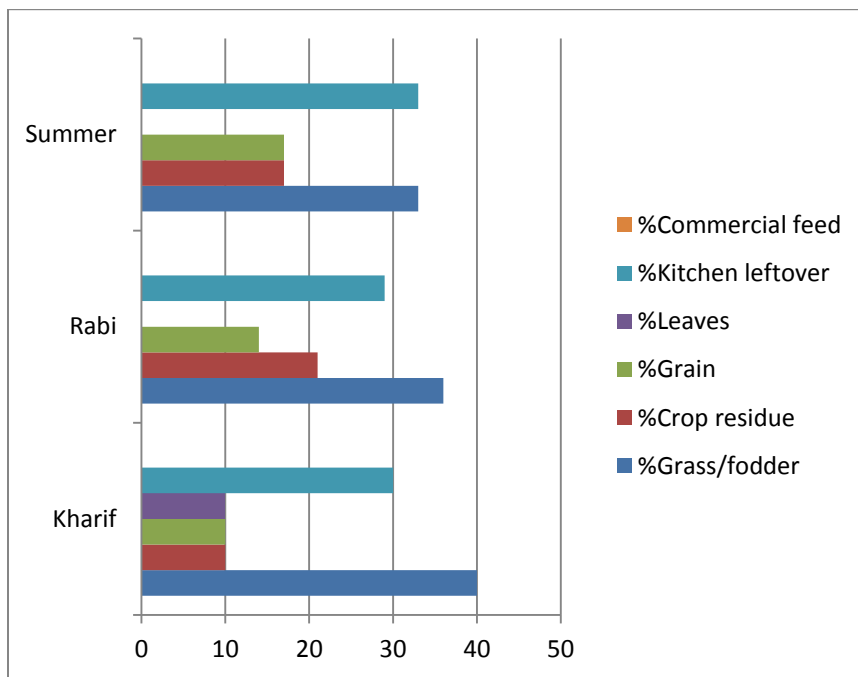
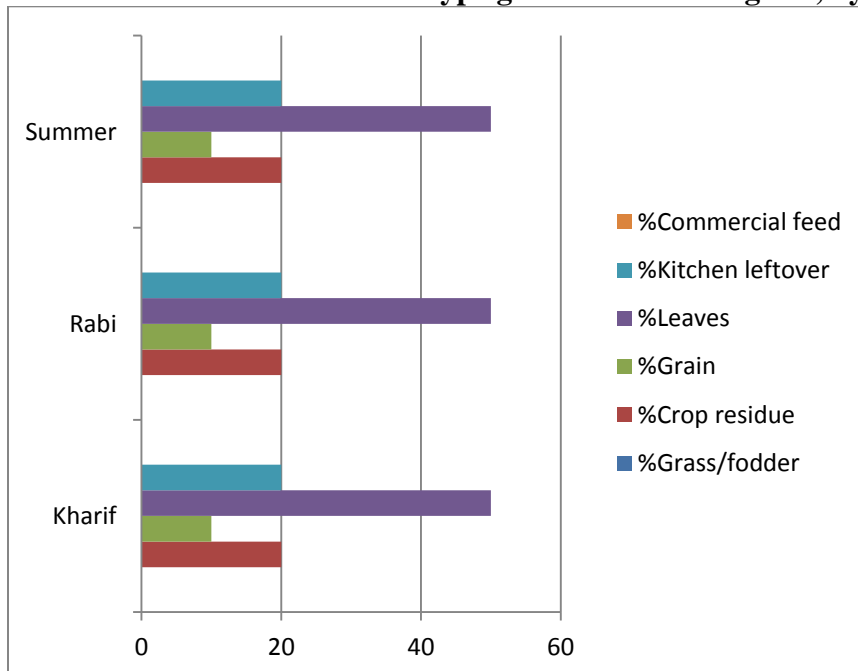


Chart 2.8: Distribution of feed-type given for stall-fed goats, by season



The data shows that:

- Grass/fodder is the main feed given to cows and bullocks in Kharif and Rabi. In summer, Rabi crop residues are the main feed. Crop residues are also given in lesser

proportion in Kharif and Rabi. In all seasons, kitchen leftover constitutes around a fifth of the feed given.

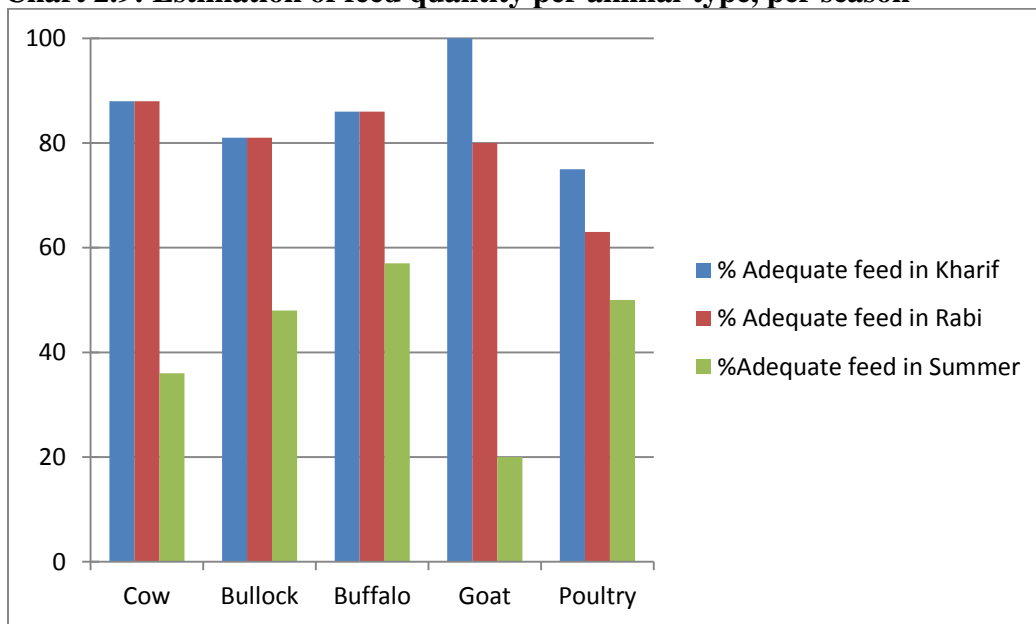
- Grass/fodder supplemented by kitchen leftovers are the main feed given to buffaloes in all seasons. Crop residues constitute a significant portion of total feed in Rabi.
- Leaves supplemented with kitchen leftover form the main feed of goats in all seasons.
- **Commercial feed is not given to goats or buffaloes, and given to only a small extent to cows and bullocks.**

In case of chicken, the main feed is kitchen leftover with some use of commercial feed.

Estimation of feed quantity in different seasons

HHs were asked to make a gross estimation of total feed quantity (stall-fed and through free grazing) consumed by different kinds of animals in different seasons. Cumulative responses for “adequate” and “inadequate” quantity of feed are shown in percentage from in chart 2.9.

Chart 2.9: Estimation of feed quantity per animal-type, per season



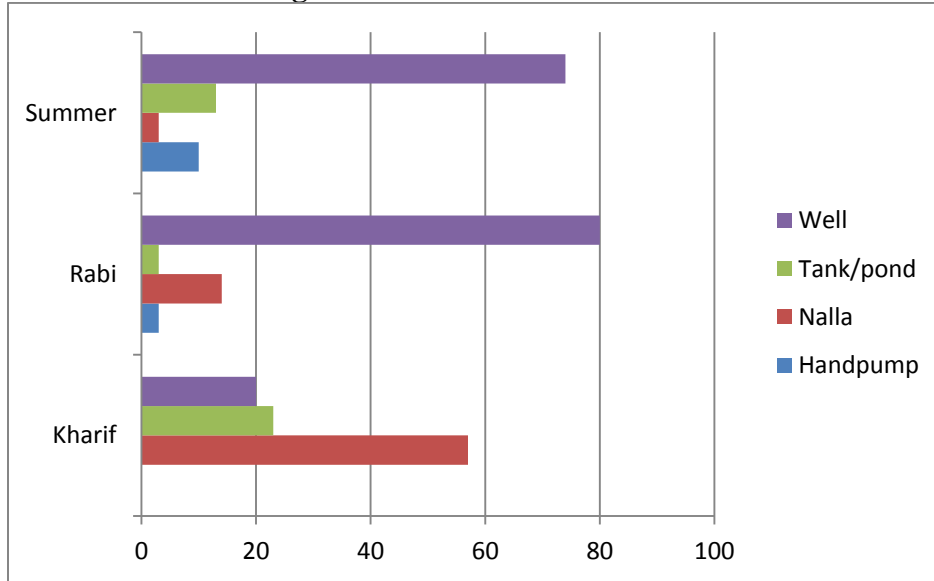
The data shows that:

- **Around 15-20% of cows, bullocks and buffaloes get inadequate feed in Kharif and Rabi.** However, most goats get adequate food in Kharif, when there is generally rich vegetation.
- **In summer more than 50% of the cows and bullocks and around 40% of buffaloes get inadequate feed. Worst hit are goats, with roughly only 20% of animals getting adequate feed.** HHs make more arrangements/investments for feeding buffaloes in summer than they do for other kinds of animals.
- Chicken get progressively less feed from Kharif to summer.

Sources of water according to season

HHs were asked to identify main sources of water for all animals they owned, in different seasons, and the percentages of cumulative data so obtained are graphically presented in chart 2.10.

Chart:2.10: Percentages of sources used to feed all animals in different seasons

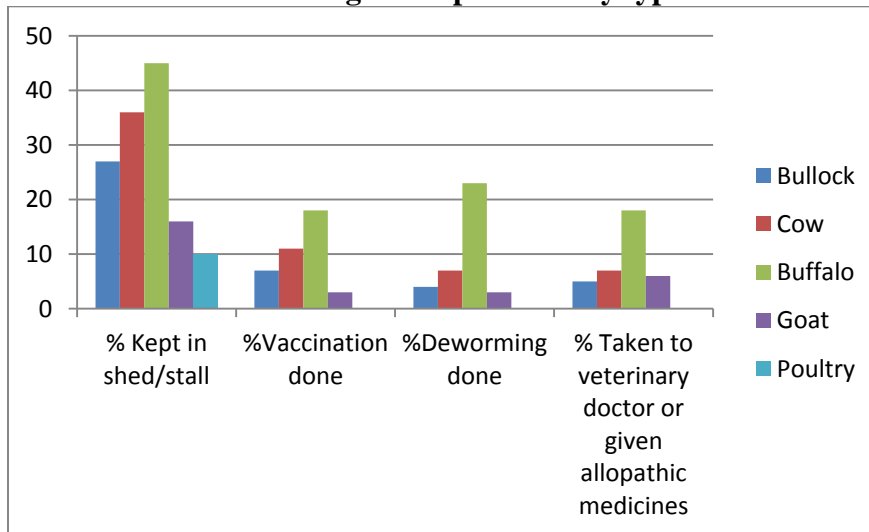


The data shows that:

- A seasonal nala is the main source of water in Kharif.
- In Rabi and summer, the main source of water is private/public wells.
- Use of handpumps to feed water to animals is low in all seasons except summer.

Animal health management practices

Chart 2.11: Health management practices by type of animal



Information about animal health management practices of HHs was obtained on four parameters: (i) whether animals of different kinds are kept in a stall/shed or not (ii) whether animals of different kinds have been vaccinated (iii) whether deworming has been done for different types of animals (iv) whether animals of different kinds have been taken to a veterinary doctor, or given commercially sold allopathic medicines for animals, when ill. The percentages of animals of each type covered under each of these parameters are shown in Chart 2.11.

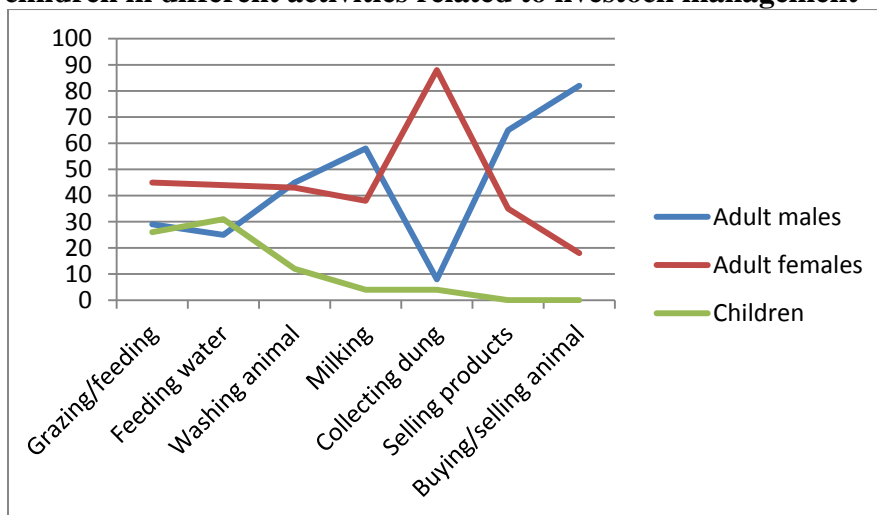
The data shows that:

- **The majority of animals of any kind are not kept in a stall or shed** (the animals are generally tied at night, but not in a separate shed or stall).
- **Only around a fifth of buffaloes have been vaccinated, dewormed or taken to a veterinary doctor when ill. In case of other types of animals, the proportion is even lower.**
- **No health management practices are followed with respect to poultry. Likewise, goats receive little attention.**

Involvement of HH members by age/gender in livestock management

Information about involvement of HH members by age and gender in livestock management was obtained by asking each HH to list “daily” or “occasional” involvement of adult males, adult females and children of both sexes in seven major activities related to livestock ownership and management. A score of 2 was given to “daily” involvement and a score of 1 was given to “occasional” involvement. Total scores for males, females and children were calculated separately as percentages of total scores under each activity. In this way, a broad pattern of extent of involvement of males, females and children in the seven major activities was obtained, as shown graphically in chart 2.12.

Chart 2.12: Percentage score of involvement of adult males, adult females and children in different activities related to livestock management



It can be clearly seen that:

- **Grazing/feeding is mainly done by women**, with some assistance from men and even children.
- Men and women are equally involved in washing animals.
- Milking is done more often by men than women.
- **Collection of dung is done almost entirely by women.**
- **Males generally handle commercial transactions** like selling products and buying/selling animals.

3. Livestock related income and expenses

Through the in-depth sample survey of 30 livestock-owning HHs, information was obtained income from and expenses incurred on livestock of different types.

As already mentioned, only 25% of HHs register any income from livestock. This is mainly because of:

- Low ownership of cows and buffaloes (generally 1 to 3 animals per HH respectively), a large number of unproductive milch animals (60-70% of total), low production of milk and use of milk for domestic consumption.
- Low ownership of poultry (generally only 1 to 7 birds per HH)
- Low ownership of goats (generally only 3 to 6 animals per HH) and use of goat meat for domestic consumption.

The low returns from milk are evident from Table 3.1 below. As can be seen, average daily milk production per cow ranges from 1.10 litres in the lean period to 2.15 litres in the peak period, and around half the production is used at home. Considering average annual expenses incurred per animal (Table 3.2), **net annual income per cow is only Rs 3000-3500**. Average daily milk production of buffaloes is also low, at 3 litres in peak period, and **net annual income per buffalo is only Rs 4500-5000**.

Table 3.1: Details of returns from milk production through the year

S. no	Indicator	Cow	Buffalo	Goat
A	Avg. no of lactating days in year	215	240	90
B	Avg. no. of peak milk producing days in year	111	120	60
C	Avg. daily milk production (litres) per animal in peak period	2.16	3	0.40
D	Avg. no. of lean milk producing days in year	104	120	30
E	Avg. daily milk production (litres) per animal in lean period	1.11	0.8	0.20
F	Avg. selling price of milk (Rs/litre)	25	20	20
G	% milk sold on average	50%	60%	0
H	Gross annual income per animal from sale of milk (Rs): G% of (B*C*F)+(D*E*F)	4440	5475	0

Table 3.2: Average annual expenses incurred per animal (Rs)

Head	Bullock	Cow	Buffalo	Goat	Poultry
Purchase of feed/fodder	250-700	250-750	2000	200	0
Medicine/veterinary service cost	50-200	50-200	50-200	50-200	0
Breeding fee	0	50	200	0	0
Erecting/repairing shed	400-1000	1000	1000-5000	0	0

In case of goats, one adult and healthy animal can fetch a price of around Rs 3000, but **HHs prefer to slaughter goats to get meat for ceremonial and festive occasions, so it does not constitute a significant source of income for most HHs.**

In case of poultry, one adult bird can fetch a price of Rs 100-200, but as number of birds per HH is low, the **maximum annual income generally obtainable for HHs from sale of live chicken is less than Rs 2000.** Eggs are a more regular source of income. It is seen that an HH with two young hens gets around 30 eggs in a month, but only half to two-thirds of the eggs are sold, for Rs 3-5 each. Assuming an HH has 5 hens, and it sells two-thirds of the eggs, then at an average sale price of Rs 4/egg, it will earn gross annual income of Rs 3600 from this source. With higher number of hens, and continual breeding (older hens lay fewer eggs), backyard poultry can become a significant source of income, but **HHs are reluctant to invest in higher number of birds due to fear of illnesses, which lead to a large number of birds at one time.** In the 12 months preceding the survey, one HH lost nearly half the 60 birds it had.

Collection and use of dung

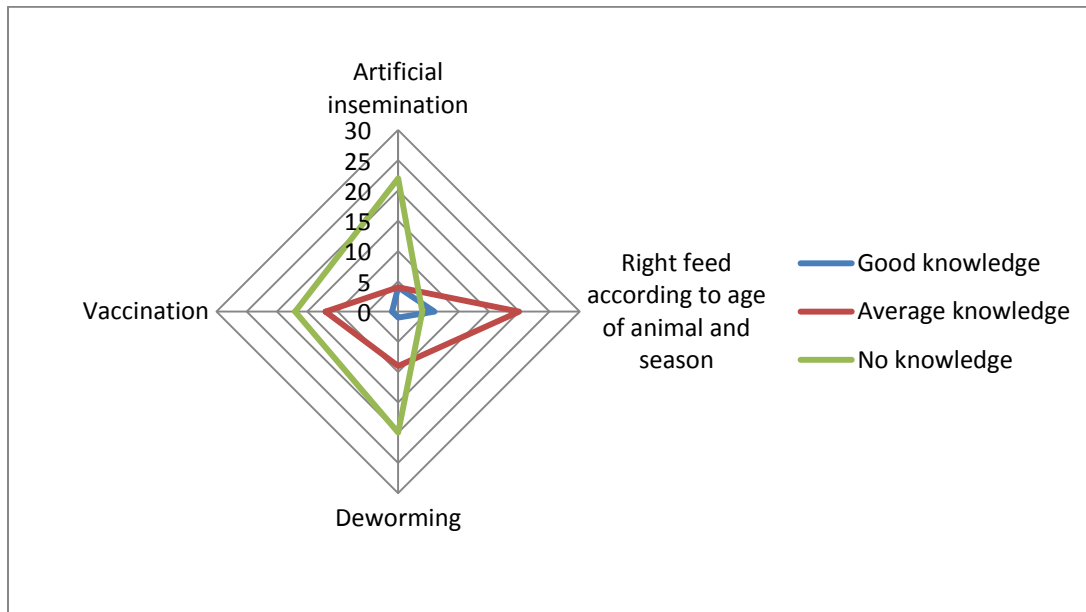
While income from livestock is not significant for most HHs, most HHs get other significant benefits: food, in the form of milk, meat or eggs, and dung. **It is seen that almost all HHs collect dung of cows, bullocks and buffaloes and around 70% of the dung is used to make manure, around 20% is used to make fuel cakes, and the rest is used for purposes like flooring.** However, dung of goats is not generally collected/used and few HHs are aware that poultry manure is an excellent source of nitrogen for plants.

4. Livestock-related knowledge level of HHs

Through the in-depth sample survey, HHs were asked about their knowledge about artificial insemination, vaccination, deworming and right feeding according to age of animal and season, and grade this knowledge as “good”, “average” or “no knowledge”.

The findings are shown in chart 4.1 below. As there is no cross-bred cattle in Project area, HHs expectedly have little knowledge about artificial insemination. Knowledge level on vaccination and deworming is also low with only around a third of HHs claiming to have average or good knowledge on these subjects. It is significant that on all four subjects, less than a fourth of HHs report having “good” knowledge. This strongly suggests that **there is a large knowledge gap to be filled**.

Chart 4.1: Distribution of 30 HHs according to knowledge level



5. Suggested measures

The study establishes that relative to human population and historical Bundelkhand averages, livestock population in the Project is low. Although most HHs own some livestock, it constitutes a source of cash income to only around 25% HHs. Even in case of these HHs, income from agriculture and migration is generally higher. Hence, we can say that livestock is mainly looked at as a supplementary asset—as a source of food, and raw material for organic fertilizer and fuel. Not surprisingly, general awareness about good livestock management practices is moderate to low.

Within these parameters, there is much need and scope for improving livestock management and productivity, through measures like:

- Increasing feed available for animals through cultivation of fodder crops and shrubs like ber (for goats) on bunds and fallow lands, and cultivation of coarse cereal crops which would meet food needs of HHs as well as their animals
- Establishment of village-level fodder banks
- Training programmes in making of concentrates like wheat bhusa and oil cakes, and Total Mixed Ration (TMR) for milch animals
- Improving health of animals through orientation programmes/camps on deworming, vaccination and for promoting use of optimum feed mixtures in different seasons according to age and kind of animal
- Promotion of construction of sheds/shelters for animals, particularly for use in summer
- Intensive training in backyard poultry
- Induction of superior breeds of goat like Jamnapari and Barbari with potential for higher meat production potential, as a first step for commercializing goat rearing
- Encouraging stall feeding of animals.

