

Insights into Livestock Practices and Socio-Economic Dynamics in Kewzing Village in Namchi District of South Sikkim

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Abstract—This study explores the critical role of animal husbandry in rural India, focusing particularly on the integration of organic farming practices in south Sikkim. With India's growing population and escalating food inflation, animal husbandry has become indispensable, supplementing agricultural livelihoods and offering essential products like milk, meat, and eggs. Integrating animal husbandry with food processing, agriculture, research, and patenting initiatives could elevate India's global nutritional status. In South Sikkim, where agriculture and animal husbandry are intertwined with organic farming, government support is pivotal. Challenges such as limited grazing lands, disease susceptibility, and inadequate market access are addressed through initiatives like stall feeding promotion, veterinary clinics establishment, and market channel creation. A survey in Kewzing village, Namchi District, involving 90 households highlighted key socio-economic factors. Livestock ownership is dominated by cows, followed by poultry, pigs, bulls, and goats. While traditional breeding methods like natural breeding are popular, advanced techniques such as artificial insemination and cross-breeding show significant adoption, particularly among literate individuals, reflecting the influence of education on agricultural tools and techniques. Awareness of animal health issues like foot and mouth diseases and deworming or vaccination is high among surveyed individuals, underscoring widespread knowledge dissemination. Both literacy and local practices contribute to this awareness, essential for sustaining livestock productivity and rural livelihoods. In conclusion, continuous advancements in breeding, feeding, and disease management practices are crucial for sustainable growth in animal husbandry.

Keywords— Animal Husbandry; Artificial insemination; Cross-breeding; Literacy; Livestock.

I. INTRODUCTION

With the increasing population and persistent rise in food inflation, the majority of the Indian populace, whose primary occupation is agriculture, now sees animal husbandry not as a choice but a necessity in the contemporary scenario. Successful, sustainable, and skillful implementation of animal husbandry practices can significantly improve the socio-economic conditions of the lower strata of society. Animal husbandry represents a critical hope, definite desire, and urgent solution for both India and the world. In India, approximately 70 percent of rural residents rely directly or indirectly on the livestock sector for their livelihoods. The benefits of the livestock sector are multifaceted, offering a significant potential to reduce poverty, hunger, and food

insecurity. Livestock provides quality food sources, such as milk, meat, and eggs, and serves as a vital income-generating asset for rural households. Through these contributions, the livestock sector plays a crucial role in enhancing the socio-economic conditions of rural communities and ensuring their nutritional well-being (1). Attention must be given to improving the productivity of farm animals, and artificial Insemination services should be widely available. Animal husbandry plays a crucial role in India, particularly in villages, where rearing cattle is a traditional practice alongside agriculture and "...this activity is very closely related to agricultural activity/production, as cultivation receives input from livestock and, in turn, provides output from livestock in the form of animal feed"(2). Animal husbandry practices yield milk, meat, eggs, and other products, and some animals, like bulls, are essential for agricultural purposes.

Sikkim achieved the distinction of becoming first state in India to officially embrace complete organic farming by the end of December 2015. The region has long practiced an integrated farming system rooted in ancient traditions, where crops and animals coexist in a mutually beneficial relationship, relying on each other for sustenance and productivity. The Indian state of Sikkim is renowned as the world's first hundred percent organic state (3). As an organic state, the government promotes and advocates for farmer assistance and support by distributing free cattle and other animals to beneficiaries recommended by local authorities to sustain production and growth in allied sectors. The primary livestock reared in the hill areas include cattle, goats, sheep, and poultry. Cattle are mainly kept for milk production, while goats and sheep provide meat and wool. Chicken farming is common for egg and meat production. The Sikkim government actively supports farmers through various schemes, including the distribution of free livestock, subsidies for constructing animal shelters, and financial assistance for fodder cultivation. These measures aim to sustain production and growth in the livestock sector. Government policies focus on improving the production and productivity of milk animals, other livestock, and poultry to enhance the overall availability of milk, eggs, meat, wool, draught animal power, and various other by-products. This is achieved by ensuring better pricing through organized marketing, strengthening farmer

organizations, and applying advanced scientific breeding, feeding, and management practices.

Animal husbandry is a crucial component of agricultural practices in the hill areas of Sikkim. It significantly contributes to the socio-economic development of rural communities in the region by providing a stable source of income and employment, thus improving the living standards of farmers (4). However, farmers in these hill areas face challenges such as limited grazing land, susceptibility to diseases, and inadequate market access. To address these issues, the government has implemented initiatives like promoting stall feeding, establishing veterinary clinics, and creating organized market channels for livestock products. Animal husbandry in the villages of South Sikkim is practiced by the people. These practices not only ensure the livelihood of the rural population but also contribute to the overall ecological and economic health of the region. With continuous improvements in breeding, feeding, and management practices, animal husbandry remains a vital component of agriculture in South Sikkim. The present study has aimed to explore the livelihood of people residing in rural areas of South Sikkim who depend on primary agricultural practices and animal husbandry for their daily needs.

II. OBJECTIVES OF THE STUDY

- a. To study the socio-economic background of the respondents of Kewzing village of South Sikkim

- b. To study the practice of animal husbandry in the area
- c. To examine the awareness about diseases of animals among the respondents

III. RESEARCH METHODOLOGY

The data collected is from Kewzing village, located in the Kewzing Bakhim panchayat of Namchi District in South Sikkim, one of the least populated regions of the state. Kewzing village is situated at an altitude of 4,600 feet, 8 km from Ravangla and 126 km from Bagdogra airport, surrounded by Mt. Narshing and Mt. Kabru. This hilly village is predominantly inhabited by Buddhist communities and has four monasteries. Agriculture is the main occupation of the residents. A survey was conducted through personal interviews with respondents, covering ninety households. The respondents were interviewed door-to-door using a survey schedule focused mainly on rural animal husbandry practices and their income sources related to it. A study on animal husbandry practices of South Sikkim requires primary data. Observations of the study area on account of the animal husbandry system through field investigations have been incorporated into this study. The present study was conducted in the Namchi district of South Sikkim. A survey schedule was developed on the socio-economic factors and breeding, awareness on management of animals. The total number of respondents was 90.



The Map data on this website is provided by Google Maps

IV. RESULTS AND DISCUSSION

1. The Socio-Economic profile of the respondents:

- (a) Age: It is noticed from Table 1 that the majority of the respondents (64.44 percent) are from the middle age group followed by the young age group (22.22 percent) and old age group (13.33 percent). This shows that the majority of the respondents are from the middle age group in the study area. The reason might be that middle-aged people are more experienced.

- (b) Caste: It is significant from Table 1 that the majority of the respondents (61.11 percent) are from the ST category followed by the OBC category (23.33 percent) and SC (15.56 percent).
- (c) Religion: As said earlier the study area is dominated by Buddhist religion, Table 1 shows that more than 50 percent of respondents were Buddhist followed by Hindu (37.78 percent) and Christian (8.89 percent)
- (d) Type of Family: It is observed from Table 1 that 56.67 percent of respondents had a joint family structure

whereas, 43.33 percent of respondents had a nuclear family.

- (e) Marital Status: Table 1 shows that the majority of the respondents (57.78 percent) are married. However, 31.11 percent of them are unmarried and only 11.11 percent of them are either widowers or divorced.
- (f) Education: It was observed from Table 1 that 63.33 percent of the respondents were literate and 36.67 percent of them cannot read and write.
- (g) Primary Occupation: Table 1 shows 40 respondents are engaged in farming as their primary occupation. This constitutes 44.44 percent of the total respondents. However, 50 respondents are engaged in non-farming activities as their primary occupation. This makes up 55.56 percent of the total respondents. A larger portion of respondents are engaged in non-farming occupations, indicating a diverse range of economic activities beyond traditional farming.

TABLE 1: Distribution of the Respondents according to their profile

Sl. No.	Variables	N=90	
		Frequency	Percentage
(a)	Age		
	Young	20	22.22
	Middle	58	64.44
	Old	12	13.33
(b)	Caste		
	Scheduled Caste (SC)	14	15.56
	Scheduled Tribe (ST)	55	61.11
	Other Backward Classes (OBC)	21	23.33
(c)	Religion		
	Buddhist	48	53.33
	Hindu	34	37.78
	Christian	08	8.89
(d)	Type of Family		
	Nuclear	39	43.33
	Joint	51	56.67
(e)	Marital Status		
	Married	52	57.78
	Unmarried	28	31.11
	Widower/Divorced	10	11.11
(f)	Literacy Status		
	Illiterate	33	36.67
	Literate	57	63.33
(g)	Primary Occupation		
	Farming	40	44.44
	Non-Farming	50	55.56
(h)	Annual Income (in Lakhs of Rupees)		
	1-2	50	55.56
	2-3	37	41.11
	3-4	03	3.33
(i)	Benefitted from Schemes		
	MGNREGA	16	17.78
	OFOJ	32	35.56
	SGSY	04	4.44
	None	38	42.22

Source: Field Data

- (h) Annual income: It is observed from Table 1 that 55.56 percent of the respondents had level of annual income between 1 to 2 lakh of rupees, while 41.11 percent of respondents had a level of annual income between 2 to 3

lakh of rupees and 3.33 percent of respondents had highest level of annual income ranging between 3 to 4 lakhs of rupees.

- (i) Benefitted from schemes: It is interesting to note that the majority of the respondents (42.22 percent) are not the beneficiary of any development schemes of the Government, however, 35.56 percent of the respondents benefitted from One Family One Job (OFOJ) scheme followed by MGNREGA (17.78 percent) and SGSY (4.44 percent).

2. Practice of Animal Husbandry in Kewzing Village

All sample households in the village have a subsidiary occupation which is animal husbandry. Livestock rearing in the village is of the traditional type. They rear cows, bulls, swine, goats etc. and Poultry.

TABLE 2: Distribution of the Respondents according to their Livestock Owning

Names of Livestock	N=90	
	Frequency	Percentage
Bull	14	15.56
Cow	32	35.55
Poultry	21	23.33
Pig	15	16.67
Goat	08	8.89

Source: Field Survey

Table 2 presents data on the types of livestock owned by a sample of 90 respondents. The most commonly owned livestock is the cow, with 35.55 percent of respondents. Poultry is the second most common, owned by 23.33 percent of respondents. Pigs are owned by 16.67 percent of respondents. Bulls are owned by 15.56 percent of respondents. Goats are the least common, owned by 8.89 percent of respondents.

TABLE 3: Distribution of the Respondents according to the types of breeding practices of animals

Types of Breeding Practices	N=90	
	Frequency	Percentage
Artificial Insemination	25	27.78
Cross Breeding	24	26.67
Natural Breeding	41	45.55

Source: Field Survey

Table 3 presents data on the types of breeding practices used by a sample of 90 individuals, showing both the frequency and percentage of each practice. Artificial Insemination is used by 25 out of the 90 respondents, representing 27.78 percent of the sample. Artificial insemination involves the manual introduction of sperm into a female animal's reproductive tract and is often used to improve genetic quality and manage breeding more effectively. The breeder collects the sperm of the superior male and injects it into the reproductive system of the chosen female (5). This practice is economical (6). Cross Breeding is used by 24 out of the 90 respondents, accounting for 26.67 percent of the sample. Cross breeding involves mating animals of different breeds to produce offspring with desirable traits from both parent breeds, aiming to improve characteristics like productivity, disease resistance, and growth rate. In cross-

breeding superior males of one breed are mated with superior females of another breed (7). Natural breeding is the most common method used by 41 respondents, representing 45.55 percent of the sample. Natural breeding involves animals mating naturally without human intervention. It is the traditional method and is often preferred in less controlled or extensive farming environments. Natural breeding is the most prevalent practice, used by nearly half of the respondents (45.55 percent). Artificial insemination and cross breeding are also significant, with both methods being used by roughly a quarter of the respondents (27.78 percent and 26.67 percent, respectively). The data indicates a diverse approach to breeding practices among the sample, with a substantial portion still relying on natural methods while a notable number are adopting more controlled and technologically advanced methods like artificial insemination and cross breeding.

TABLE 4: Distribution of the Respondents categorized by their literacy status according to the types of breeding practices of animals

Types of Breeding Practices	N=90		
	Illiterate	Literate	Total
Artificial Insemination	12	13	25
Cross Breeding	07	17	24
Natural Breeding	14	27	41

Source: Field Survey

Table 4 provides a breakdown of breeding practices among 90 individuals, categorized by their literacy status (illiterate and literate). Artificial Insemination is used by 25 individuals in total, with nearly equal distribution between twelve illiterate and thirteen literate respondents. This suggests that literacy does not significantly impact the adoption of artificial insemination, as it is relatively evenly used among both groups. Cross Breeding is used by 24 individuals in total, with a higher number of literate respondents (seventeen) compared to illiterate respondents (seven). This indicates that literate individuals are more likely to use cross-breeding methods, possibly due to better access to information and resources. Natural Breeding is the most common practice, used by 41 individuals in total. It is more prevalent among literate respondents (twenty seven) compared to illiterate respondents (fourteen). Although natural breeding is still widely used by both groups, literate individuals use it more frequently, potentially due to a mix of tradition and selective use of natural methods alongside other practices. The data highlights that while traditional practices like natural breeding remain popular, there is also a significant adoption of more advanced methods such as artificial insemination and cross-breeding, particularly among literate individuals. This indicates that education and access to information may influence the choice of breeding practices. A similar observation is found that “there is a need to educate the tribal livestock farmers on different aspects of animal husbandry practices in general and value addition, feeding practices and marketing in particular” (8).

Table 5 presents data on the places where 90 individuals sell their produce, categorized by their literacy status. The local markets are the primary selling place where both

illiterate and literate individuals bring their products to be sold, with a slightly higher number among literate respondents (58 percent), and selling exclusively in towns is not a common practice, particularly among literate individuals.

TABLE 5: Distribution of the Respondents categorized by their literacy status according to the place of selling of produce

Place of Selling of produce Practices	N=90		
	Illiterate	Literate	Total
Local Market	26	36	62
Town	02	00	02
Local Market and Town both	03	08	11
Not selling	02	13	15

Source: Field Survey

Some respondents use both local markets and towns for selling their produce. Literate individuals (72 percent) are more likely to use multiple selling locations, indicating greater market reach or diversification. A higher number of literate individuals (87 percent) do not sell their produce, which could imply they might be consuming it themselves, engaging in non-commercial farming, or might be using produce for extracting animal fat and protein consumption for improved nutrition, and their milk helps infants survive.

TABLE 6: Distribution of the Respondents categorized by their occupations and animals owned by them

Types of Occupation	N=90					
	Bull	Cow	Goat	Poultry	Pig	Total
Farming	10	14	05	05	06	40
Agriculture	8	6	4	0	4	22
Bee Farming	0	0	0	3	0	3
Dairy Farming	0	8	0	0	0	8
Floriculture	2	0	0	0	0	2
Pig Farm	0	0	0	0	1	1
Poultry Farm	0	0	0	2	0	2
Horticulture	0	0	1	0	1	2
Non Farming	04	18	03	16	09	50
Artisanship	1	2	0	2	3	8
Black Smith	0	2	0	0	0	2
Driver	0	1	0	2	0	3
Service	2	2	2	4	0	10
Handloom	0	2	0	0	0	2
Mason	0	1	0	0	1	2
Shop	0	5	1	3	5	14
Tailor	0	0	0	2	0	2
Trade	1	2	0	2	0	5
Construction Labour	0	1	0	1	0	2

Source: Field Survey

Table 6 presents the distribution of types of occupation among 90 respondents, categorized by the majority of animals they own, including bulls, cows, goats, poultry, and pigs. Farming is a common occupation among respondents who own bulls (ten), cows (fourteen), goats (five), poultry (five), and pigs (six). This indicates that a significant portion of animal owners are engaged in farming activities. Agriculture is an occupation, especially among those who own eight bulls, six cows, four goats, and four pigs. It is interesting to note that none of the respondents involved in agriculture are associated with poultry. Dairy farming is solely linked to cow owners, with eight respondents engaged in this occupation. Non-

farming occupations are significant among 18 cow, 16 poultry, nine pig, four bull, and three goat owners. This indicates that many respondents are engaged in occupations outside traditional farming in the study area. Farming is a significant occupation among respondents, especially for those fourteen who own cows and ten bulls. Non-farming occupations are even more prevalent, particularly among eighteen cows and sixteen poultry owners.

3. The awareness about diseases of animals

TABLE 7: Distribution of Respondents according to their awareness about diseases of animals

Awareness on Foot & Mouth diseases (FMD) of animals	N=90		
	Illiterate	Literate	Total
Yes	26	50	76
No	07	07	14
Awareness on Deworming and Vaccination of animals			
Yes	26	50	76
No	07	07	14

Source: Field Survey

Table 7 provides data on the awareness of foot and mouth disease and the deworming and vaccination of animals among a group of 90 individuals, divided into illiterate and literate categories. The awareness is very important because Foot-and-mouth disease (FMD) is a major disease of livestock in India and causes huge economic losses. Regular six-monthly immunization certainly has a positive impact on the reduction of disease burden and should be followed without fail and delay, along with intensive disease surveillance (9). A total of 76 out of 90 individuals are aware of both foot and mouth diseases and deworming/vaccination of animals. This indicates a high level of awareness in these areas. Only 14 out of 90 individuals are not aware of these issues. Among the literate group (total of 57 individuals), 50 are aware, and 7 are not aware of both foot and mouth diseases and deworming/vaccination. This suggests that literacy correlates with higher awareness. Among the illiterate group (total of 33 individuals), 26 are aware, and seven are not aware of both issues, indicating that while illiteracy may be associated with lower awareness, a significant number of illiterate individuals are still aware of these animal health issues. The data shows consistency in awareness levels for both foot and mouth diseases and deworming/vaccination. The same numbers of individuals are aware or unaware of both issues, suggesting a uniform level of knowledge across these topics. There is a high level of awareness about animal health issues (foot and mouth diseases, deworming, and vaccination) among the surveyed individuals. Literacy appears to enhance awareness, but even among illiterate individuals, a significant number are informed. The distribution of awareness is consistent across both health issues, indicating uniformity in knowledge dissemination.

V. CONCLUSION

With the growing population and rising food inflation, animal husbandry has become a necessity for the majority of the Indian population, primarily engaged in agriculture. Integrating animal husbandry with food processing,

agriculture, research, and patents can transform India into a global nutritional powerhouse. Improving farm animal productivity and making Artificial Insemination widely available are crucial. Farmers face challenges such as inadequate credit and poor market access, impacting fair milk prices. Animal husbandry is vital in villages for milk, meat, eggs, and agricultural purposes. In South Sikkim, animal husbandry is integrated with organic farming and supported by government initiatives. Challenges include limited grazing land, disease susceptibility, and market access. Solutions involve promoting stall feeding, establishing veterinary clinics, and creating market channels. A survey was conducted in Kewzing village, Namchi District, involving 90 households. Personal interviews covered socio-economic factors and animal husbandry practices. The majority of the respondents are middle-aged and belong to the ST category. Predominantly, they practice Buddhism (50%). About 63.33 percent are literate, 55.56 percent are engaged in non-farming activities, and 55.56 percent have an annual income ranging from 1-2 lakh rupees. The most commonly owned livestock among respondents is the cow (35.55 percent), followed by poultry (23.33 percent). Pigs are owned by 16.67 percent of respondents, bulls by 15.56 percent, and goats are the least common, owned by 8.89 percent of respondents. Artificial Insemination is used with nearly equal distribution between 12 illiterate and 13 literate respondents. This suggests that literacy does not significantly impact the adoption of artificial insemination, as usage is relatively balanced between both groups. Cross Breeding is used by 24 individuals, with a higher number (seventeen) of literate respondents compared to seven illiterate respondents. This indicates that literate individuals are more likely to use cross-breeding methods, possibly due to better access to information and resources. The data highlights that while traditional practices like natural breeding remain popular, there is also significant adoption of more advanced methods such as artificial insemination and cross-breeding, particularly among literate individuals. This indicates that education and access to information may influence the choice of breeding practices. Agriculture is particularly prominent among owners of bulls, cows, goats, and pigs. However, none of the respondents involved in agriculture are associated with poultry. Dairy farming is exclusively linked to cow owners, with 8 respondents engaged in this occupation. This data highlights that while farming remains a significant occupation among livestock owners, especially for those owning cows and bulls, a substantial number of respondents are also engaged in non-farming occupations, reflecting economic diversification among rural households in the study area. Non-farming occupations are even more prevalent, particularly among cow and poultry owners. A total of 76 out of 90 surveyed individuals demonstrate awareness of both foot and mouth diseases and de-worming/vaccination practices for animals, indicating a high level of awareness in these areas. Only 14 individuals out of 90 are not aware of these animal health issues. The data indicates consistent awareness levels across both foot and mouth diseases and de-worming/vaccination practices, with an equal number of individuals aware and unaware of these

issues. This uniformity suggests widespread knowledge dissemination in the surveyed population. Overall, there is a high level of awareness regarding animal health issues among the surveyed individuals, with literacy potentially enhancing awareness levels, though significant awareness is also observed among illiterate individuals. Continuous improvements in breeding, feeding, and management practices are essential for sustainable growth. The study highlights the need for better market access and disease management to enhance the livelihood of rural communities in the region.

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