Janabhawana Research Journal
Vol. 4, Issue No. 1, July 2025, Page: 128-143
ISSN: 2505-0621

Cost Benefit Analysis of Animal Husbandry in Gajuri Rural Municipality, Dhading

Vidya Darshan Basnet[1] & Raghu Bir Bista[2]*

Abstract

Animal husbandry serves as a primary source of income and employment. However, there is limited information on the actual costs and benefits households incur from this practice. This study aimed to estimate the cost-benefit structure of dairy cattle farming and examine the socioeconomic factors influencing herd size in Gajuri Rural Municipality. Data were collected from 196 livestock-keeping households across 8 wards using a census method and structured questionnaires. Descriptive statistics, charts, and graphs were employed to present cost and benefit insights, while Ordinary Least Squares method identified the determinants of herd size. The findings revealed that at local price, the net benefit was Rs. -119,657.1 including labor cost and Rs. 73,643.9 excluding it, resulting in a benefit-cost ratio (B/C) of 0.59 and 1.75, respectively. At market price, net benefits were Rs. 23,885.9 including labor and Rs. 217,187.0 excluding labor, with B/C ratios of 1.08 and 3.21, respectively. These outcomes suggest that dairy cattle farming can be economically beneficial, especially when household labor is not monetarily accounted for and market prices are considered. Additionally, ethnicity, landholding size, and remittance income were found to significantly influence herd size, underlining key socioeconomic determinants in livestock investment decisions.

Keywords: cost benefit analysis, livestock farming, benefit cost ratio, local price, market price

Article information

Received: 23-05-2025 Reviewed: 28-05-2025 Revised: 20-06-2025 Accepted: 08-07-2025
** Corresponding Author's Email: basnetvidyadarshan06@gmail.com*
Cite this article as:
Basnet, V. D., & Bista, R. B. (2025). Cost benefit analysis of animal husbandry in Gajuri Rural Municipality, Dhading. *Janabhawana Research Journal, 4*(1), 128-143. https://doi.org/10.3126/jrj.v4i1.82428

[1] Lecturer, Sigma College, Sorhakhutte
[2] Associate Professor, Patan Multiple Campus, Patandhoka

Introduction

Nepal is predominantly an agrarian economy, where approximately 68% of the working population is engaged in the agriculture sector (ILO, 2018). Despite its vital role, the agriculture sector's contribution to the national Gross Domestic Product (GDP) was expected to be only 27.6% in the fiscal year 2017/18, while the non-agriculture sector accounted for 72.4% (Economic Survey, 2017). Agriculture in Nepal includes a wide range of economic activities such as the cultivation of food grains and cash crops, as well as animal husbandry. However, the sector has been experiencing a gradual decline in its GDP contribution due to various constraints, including traditional farming methods, inadequate irrigation systems, poor infrastructure, and limited market access. Among the most significant challenges is disguised unemployment, which continues to lower productivity. Nevertheless, agriculture remains crucial for national development as it supplies essential goods like food, vegetables, fruits, meat, milk, and raw materials for agro-based industries.

Animal husbandry, as an integral part of the agriculture sector, holds economic, social, cultural, and religious importance in Nepalese society. Historical references, such as those to the Gopalbanshi and Mahispal dynasties, suggest that livestock farming has been practiced in Nepal since ancient times. Traditionally, it was carried out to meet household needs or for bartering, with little to no commercialization due to the lack of market systems, modern technology, institutional support, and awareness. Livestock such as buffalo, cow, goat, pig, chicken, and duck are commonly raised in the Terai and hilly regions, while animals like yak, sheep, mule, and donkey are more prevalent in the mountainous areas. These animals are reared not only for milk, meat, and eggs but also for ghee, wool, hides, draught labor, manure, and transportation. Additionally, livestock contribute to food security, improve nutritional standards, and support crop cultivation through organic manure and biogas production.

In recent years, the introduction of crossbred or improved livestock species has enhanced productivity in many areas, provided proper farm management practices are followed. The integration of crop farming and animal husbandry is a distinctive feature of Nepalese agriculture, with each sector complementing the other—crop residues serve as fodder for livestock, and livestock manure enriches soil fertility. Institutional support for livestock development is provided by various agencies such as the Department of Livestock Services (DLS), Nepal Agricultural Research Council (NARC), and Institute of Agriculture and Animal Science (IAAS). Moreover, organizations like the Dairy Development Corporation (DDC), National Dairy Development Board (NDDB), Agricultural Development Bank (ADB), as well as cooperatives, NGOs, INGOs, and private sectors, have played a significant role in the commercialization and development of livestock farming across the country.

Despite these developments, many rural farmers—such as those in Gajuri Rural Municipality of Dhading district—remain unaware of the actual costs and returns involved in animal husbandry. In these areas, animal husbandry serves as a primary source of livelihood and self-employment, offering income through the sale of milk, ghee, meat, and live animals, along with other indirect benefits like biogas, manure, and nutritional food for household consumption. However, farmers often fail to account for labor costs, the value of homegrown fodder, and the benefits derived from self-consumed products. Additionally, socio-economic factors such as ethnicity, landholding size, education level, and the number of economically active family members influence the number of livestock households maintain in their herds.

In this context, the present study aims to analyze the cost and benefit structure of animal husbandry and to identify the socio-economic determinants influencing cattle holdings in Gajuri Rural Municipality. The general objective of the study is to evaluate the cost and benefit of animal husbandry and examine the factors determining the cattle-holding capacity of households. The specific objectives are: (i) to estimate the costs and benefits involved in animal husbandry, and (ii) to examine the socio-economic determinants of herd size of cattle.

Literature review

The cost-benefit dimension of livestock management has been widely examined across different contexts. Adams et al. (2021) investigated the economic benefits of sheep and goat management in northern Ghana under traditional systems. Employing a two-stage evaluation approach and the replacement cost theory to value non-market services, they found that at least 60% of net benefits derived from such small ruminant production were non-cash—encompassing insurance, non-cash savings, cultural rituals, and food risk mitigation. Their findings suggest that traditional free-range systems are economically viable once both market and non-market values are considered.

In reviewing improvements in farm animal welfare, Fernandes et al. (2021) highlighted that associated costs—ranging from infrastructure upgrades to ongoing operational expenses—are often substantial. The benefits are multifaceted, accruing to the animals (enhanced well-being), businesses (improved productivity and consumer reputation), and society (ethical standards). They emphasize the difficulty of quantifying welfare benefits purely in economic terms, urging consideration of intangible gains.

Ng'ang'a et al. (2020) provide insights from Ethiopia's Oromia lowlands, comparing traditional versus improved livestock practices such as rotational grazing, rangeland restoration, and fodder cultivation. Their financial and economic analyses revealed that active restoration and fodder cultivation yielded positive net present values at a 12% discount rate, while deferred rotation grazing showed a longer breakeven horizon of 12

years. Sensitivity analyses affirmed that positive results persist even under drought conditions, and inclusion of carbon sequestration and methane emission mitigation added further economic legitimacy.

Turning to poultry systems, Okedere et al. (2020) evaluated three management systems—battery cage, deep litter, and free-range—for Isa Brown layer hens in Nigeria. Deep litter systems produced the highest egg yield and revenue, while free-range systems generated the highest net benefit due to lower capital costs. Battery cage systems incurred high infrastructure expenses, reducing overall profitability.

In the dairy sector, Diro et al. (2019) compared small versus large commercial dairy farms in Ethiopia. They found that larger farms incurred 38% lower costs per cow and generated 55% higher revenue. Feed accounted for over 80% of variable costs. Challenges identified included limited access to credit, AI inefficiencies, and market constraints. They recommend technological support, feed processing, and capacity-building interventions to bridge the performance gap.

Additional research across diverse settings corroborates these patterns. In Nigeria, Jenkins et al. (2018) showed that crop-based interventions generate significant returns but still fall short of lifting households out of poverty without livestock or non-farm income. Khan & Khan (2017) in North India emphasized adopting improved breeds such as Jerseys to reduce milk production costs and increase output, while Popescu (2014) in Romania employed a Cobb-Douglas model to show how input costs and labor significantly influence milk income.

In Europe, Majewski et al. (2012) evaluated welfare improvements in dairy, pork, and beef systems, concluding that additional standards often entail costs that outweigh benefits—except in dairy, where upgraded cow welfare produced favorable outcomes. Meanwhile, Alvarado (2013) in Ecuador demonstrated that alternative smallholder agricultural projects can generate positive national welfare impacts even when individual farmers' returns are marginal. Similarly in Kenya, Mburu et al. (2007) found that smallholder dairy enterprises are generally profitable, especially when milk markets function competitively beyond cooperative structures.

In the Nepalese context, Sapkota and Karmacharya (2022) reported that including household labor cost turns animal husbandry unprofitable in Dalchoki VDC, although excluding such cost yields profitability. Socioeconomic factors such as landholding size and remittance income significantly influenced herd size. Upadhyaya et al. (2017) showed that under Nepal's Agricultural Perspective Plan, livestock and milk production growth accelerated, shifting toward small ruminants and poultry and increasing per capita food availability. Historical studies—from Adhikari (2000) to Bhari & Yadav (2000) to Humagai (2001) and Thakur et al. (2003)—underscore livestock's roles in subsistence, manure

provision, social prestige, and rural employment, while pointing to constraints such as lack of fodder, veterinary services, and market access.

The literature highlights that livestock systems contribute economically not only through direct market products but also via significant non-market benefits. Adoption of improved management practices and breeds consistently enhances profitability, though initial investments and socio-environmental contexts shape outcomes. These findings offer relevant frameworks for exploring cost-benefit dynamics and socio-economic determinants in Nepal's rural livestock-husbandry settings.

Conceptual Framework

Figure 1:

Conceptual Framework

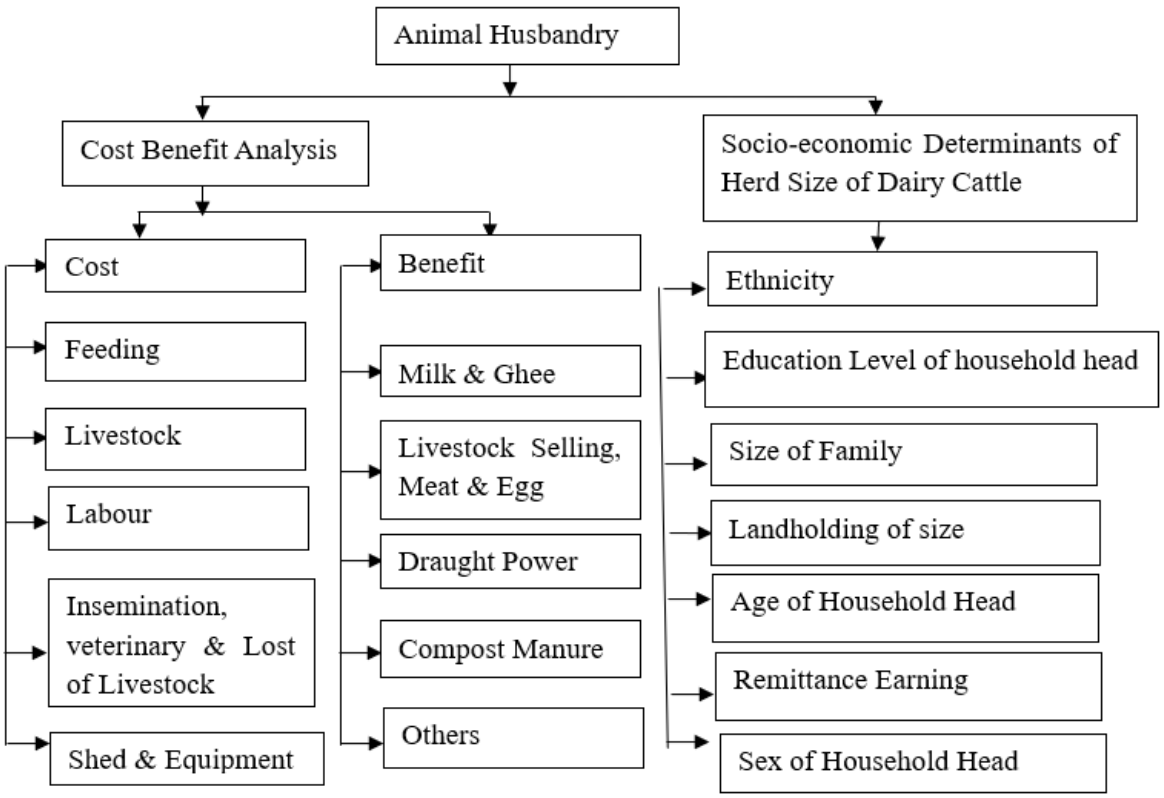

Figure 1 shows the both aspects of the animal husbandry cost and benefit as well as socioeconomic determinants of dairy cattle keeping size. Here, cost and benefit represents the private cost and benefit of household level rather than social cost and benefit. The cost components are feeding, livestock buying, labor, insemination, veterinary and lost livestock

as well as shed and equipment. Similarly, benefit components are, milk, ghee, livestock selling, meat and egg, draught power, manure and others. In addition, the socioeconomic determinants of cattle keeping size are ethnicity, education level of family members, size of family, landholding size, remittance earning, age of the household head and sex of the household head.

Sample Size and Sampling Techniques

Gajuri rural municipality contains 8 wards including 5600 households with 27084 populations. Majority of the households have engaged in animal husbandry. As there is not accurate number of households involving in animal husbandry, only 196 households were selected for the study by using convenience sampling method. The sample size from each ward were taken proportionally as the households.

Cost variables

1. Feeding Cost

The feeding cost includes cost of grass, rice bran, maize, salt and other feeding items. In the study area, farmers had preferred more for the grain-based feeding e.g. Maize, rice bran, dry hay etc. rather than green grass-based feed even though cost of grain-based feeding was higher.

2. Livestock Purchasing Cost

In the study area, most of the households do not have cow and buffalo previously. They have purchased from other farmer; such a purchasing costs are included here. In the study area, most of the farmers had bought lactating cow and buffalo rather than non-lactating.

3. Labour Cost

In the study area, it was found that the entire households were using household labour for animal husbandry instead of hired labour. Similarly, some of the people had adopted animal husbandry as an alternative occupation where they had been investing their leisure time. In this study, the labour cost for eight hours of labouring has taken Rs 400. For this, researcher had conducted the focused group discussion in study area with concerned people. There was also near about zero opportunity cost for other occupation in the study area for the most of the farmers.

4. Insemination, Veterinary and Lost of Livestock Cost

Most of the farmers in the study area were having natural insemination to their livestock for which farmers have to pay Rs.1500 per buffalo and few of them had also having artificial insemination to their livestock as well. Similarly, due to attack of different

diseases to livestock, farmers had expense on veterinary too. Sometimes, diseases had caused the death of livestock. So that farmers were incurring the cost of insemination, veterinary and lost livestock.

5. Shed and Equipment Cost

The cost of shed and equipment is compulsory cost for the animal husbandry. The farmers had been used different equipment like sickle, grass chopping machine, baskets, pots etc. In animal husbandry, the purchasing cost of such equipment is included in equipment cost. Similarly, the shed cost per year has been estimated and included in shed cost.

Benefits Variables

1. Value of Milk and Ghee

Milk and ghee were the main product from animal husbandry in the study area where cow and buffalo were milk producing cattle.in this study, both household consumption and selling quantity of milk and ghee had been taken and valued on the basis of existing market price where farmers were selling milk Rs.70 per litre and ghee Rs.1000 per litre. In this study, only the revenue from the sale of milk and ghee are included under the topic value of milk and ghee.

2. Livestock Selling, Meat and Egg

In study area, people were selling dry buffalo, buffalo calf, got and chicken. Thus, these cattle had low price than lactating dairy cattle. Similarly, people had used the livestock for self-consumption of meat and eggs as well as they had also sold the rest of the meat and eggs after fulfillment of their own demand. This study includes value of both self-consumption and selling with reference of existing local market price.

3. Draught Power

In the study area, bullocks are used for draught power. Farmers had used them to plough their own field as well as to earn money income by ploughing the field of the villagers. They receive Rs. 1000 per day by ploughing the field of villagers in terms of wage. In this study, both ploughing own land and land of villagers per year are estimated and included as benefit from draught power.

4. Value of compost Manure

As most of the farmers who are involved in animal husbandry are involved in the crop cultivation too. So, compost manure is one of the most beneficial products of animal husbandry for agriculture. It minimizes the cost of purchasing chemical fertilizer. There was low transaction of compost manure in the study area, but it has also an economic value. The existing market price for compost manure was found to be Rs. 50 per doko.

Model Specification of Ordinary Least Square (OLS) Method

The linear regression model has been used to analyze the socioeconomic determinants affecting the numbers of cattle by the households. Thus, the linear regression model using the ordinary least square (OLS) method is presented as:

$$Y= a + b_1 X_1 + b_2 X_2+ b_3 X_3+ b_4 X_4+ b_5 X_5 +U$$

Where,

Y = No. of cattle/dependent variables

a = Constant or Intercept

b_is = Coefficient of explanatory/exogenous/independent variables

X_1 = Ethnicity (Brahman/Chhetri or other)

X_2 = Family size

X_3 = Total landholding size

X_4 = Education level of family members

X_5 = Remittance earning

X_6 = Age of the Household head

X_7 = Sex of the Household Head

U = Error term

Results

The study conducted in Gajuri Rural Municipality, Dhading, reflects the diverse ethnic and socio-economic composition of its inhabitants, particularly those involved in animal husbandry. According to the data, six major ethnic groups reside in the area: Tamang (38.8%), Chhetri (35.2%), Newar (12.8%), Brahmin (6.1%), Magar (6.1%), and Chepang (1%). The predominance of the Tamang and Chhetri communities indicates that these groups are more actively engaged in animal husbandry activities in the region. In terms of education, the majority of respondents were either illiterate (33.7%) or had education below the SLC level (52.6%). Only a small fraction of the population had completed higher education, with just 8 having passed Plus 2 and 3 holding a Bachelor's degree. This reflects a generally low level of formal education among the population engaged in animal husbandry, which could have implications for the adoption of modern livestock practices and overall productivity.

Table 1

Socio-Economic and Demographic Features of Study Area

Variables	Classification	Percent
Ethnicity of the respondent	Brahmin	6.1
	Chhetri	35.2
	Tamang	38.8
	Newar	12.8
	Others	7.1
Education level of respondent	Illiterate	33.7
	Under SLC	52.6
	SLC or above	13.8
Age classification	25-34	9.2
	35-44	26
	45-54	30.1
	55-64	23
	65 or above	11.8
Occupation of the respondent	Agriculture	88.3
	Business	3.6
	Foreign employment	3.1
	Others	5.1

Source: Field Survey, 2019

Demographically, the age distribution reveals that the majority of the respondents fall within the productive age range of 35 to 64 years, with the highest concentration (30.1%) in the 45–54 age group, followed by 26% in the 35–44 group and 23% in the 55–64 group. This indicates that middle-aged individuals are more involved in livestock-related activities, likely due to their experience and responsibilities in household economic management. The occupational data further confirms that agriculture remains the dominant source of livelihood in the area, with 88.3% of the respondents reporting it as their main occupation. Other forms of employment, including business (3.6%), formal employment (5.1%), and foreign employment (3.1%), represent only a small portion of the economic activities. This strong dependence on agriculture suggests limited livelihood diversification in the area and highlights the importance of animal husbandry in the rural economy of Gajuri.

Table 2 shows average annual cost of different components with standard deviation and respective proportion/percentage.

Table 2

Average Annual Cost with Cost Components of the Study Area

Cost	Mean	Std. Deviation	share in cost
Purchase of livestock	15615.3	22525.7	5.4
Labour	193301.0	60674.2	66.3
Feeding	74770.1	33801.2	25.6
Veterinary, insemination, livestock loss	3689.2	4406.8	1.3
Shedding and equipment	4296.0	1275.7	1.5
Total cost	291671.7	82210.8	100.0

Source: Field Survey, 2019

According to above table, the average annual cost of purchase of livestock, cost of labour, feeding cost, cost of veterinary, insemination and loss of livestock and cost of shed and equipment were found Rs15615.3, Rs193301, Rs74770.1, Rs3689.2 and Rs4296 respectively in the study area. Here, it was seen that labour cost had the highest share in total cost, which is 66.3% among all the components like: feeding cost, cost of livestock purchase, shed and equipment cost as well as cost of veterinary, insemination and lost livestock comes in the respective order. As a result, the average annual total cost for animal husbandry in the study area was found to be Rs 291671.7.

Table 3

Average Annual Benefit at Local Price from Animal Husbandry in Study Area

Benefit	Mean	Std. Deviation	Share in total benefit
Milk Ghee	17203.8	25495.6	10.0
Livestock Sale	73158.7	87239.2	42.5
Draught power	24677.8	70989.9	14.3
Compost manure	56974.2	30869.5	33.1
Total benefit	172014.5	138462.2	100.0

Source: Field Survey, 2019

As shown in Table 3, the annual average benefits from milk and ghee, livestock sale, draught power and compost manure per households were seen as: Rs.17203.8, Rs73158.7, Rs.24677.8 and Rs.56974.2 with standard deviation of Rs.25495.6, Rs.87239.2, Rs.70989.9 and Rs.30869.5respectively. Benefit from livestock sale had highest share in total benefits, which was found as 42.5% and benefits from milk and ghee had lowest share in total benefit, which was found as 10%.

Table 4

Average Annual Benefit from Animal Husbandry in Study Area at Market Price

Benefit	Mean	Std. Deviation	Share in total benefit
Milk Ghee	43869.8	65013.7	13.9
Livestock Sale	142659.5	170116.4	45.2
Draught power	40718.3	117133.4	12.9
Compost manure	88310.0	47847.8	28.0
Total benefit	315557.6	259777.6	100.0

Source: Field Survey, 2019

As shown in Table 4, the annual average benefits from milk and ghee, livestock sale, draught power and compost manure per households were seen as: Rs.43869.8, Rs.142659.5, Rs.40718.3 and Rs.88310.0 with standard deviation of Rs.65013.7, Rs.170116.4, Rs.117133.4 and Rs.47847.8 respectively. Benefit from livestock sale had highest share in total benefits, which was found as 45.2% and benefits from draught power had lowest share in total benefit, which was found as 12.9%.

Table 5

Benefit Cost Ratio of the Study Area at Local Price

Variables	Amount in Rs.
Total benefit	33714844.38
Total cost	57167644.67
Total cost excluding labour	19280644.67
B-C ratio	0.59
B-C ratio excluding labour	1.75

Source: Field Survey, 2019

As shown in Table 5, annual total cost including HH labour, excluding HH labour and total benefits were found as Rs.33714844.38, Rs.57167644.67 and Rs.19280644.67 respectively. The benefit cost ratio including labour is found as 0.59 and excluding labour is 1.75.

Above result implies that animal husbandry is not profitable including HH labour cost as B-C ratio is less than one (B-C ratio= 0.59) and it is profitable excluding HH labour cost as B-C ratio is greater than one (B-C ratio= 1.75).

Table 6

Benefit Cost Ratio of the Study Area at Market Price

Variables	Amount in Rs.
Total benefit	61849287.28
Total cost	57167644.67
Total cost excluding labour	19280644.67
B-C ratio	1.08
B-C ratio excluding labour	3.21

Source: Field Survey, 2019

As shown in Table 6, annual total benefits, total cost including HH labour, and excluding HH labour were found as Rs. 61849287.28, Rs. 57167644.67 and Rs. 19280644.67 respectively. The benefit cost ratio including labour is found as 1.08 and excluding labour is 3.21.

Above result implies that animal husbandry is profitable including HH labour cost and excluding HH labour cost as B-C ratio is greater than one (B-C ratio= 1.08 and 3.21).

Table 7

Socioeconomic Determinants of Dairy Cattle Keeping

Variables	B	Std. Error	t	Sig.
(Constant)	5.539	2.441	2.269	0.024
age	0.04	0.033	1.22	0.224
Ethnicity	-1.19	0.736	-1.617	0.108
Sex (M=1, 0 otherwise)	-0.849	1.445	-0.588	0.557
Family size	0.135	0.179	0.756	0.451
land holding	0.143	0.059	2.439	0.016
Education	-0.089	0.439	-0.203	0.84
Remittance	0.214	0	1.732	0.085
F-statistics	2.785			
p-value	0.009			
R^2	0.45			
adjusted R^2	0.39			

Source: SPSS 25 output based on Field Survey, 2019

Regression results showed that ethnicity has negative effect on the herd size. The coefficient of ethnicity is -1.19 and it is also statistically significant at 10% level of significance. It means that Brahmin/Chhettri are less likely to keep more herd in their households than other ethnic groups. The regression results showed that there is positive effect of total land occupied on the herd size. The regression coefficient is 0.0143 which means that if the land size is increased by 1 Ropani, the herd size is increased by 0.0143 units. But this result is also statistically significant. Also, remittance has positive and

statistically significant effect on cattle size. The coefficients of other variables are not statistically significant.

The value of R^2 is 0.45 which means that the 45% of variation in dependent variable is explained by the independent variables. The f-statistics shows that the regression model is statistically significant.

Discussions

Hence, in the study primary data from 196 households involved in animal husbandry of Gajuri rural municipality were taken, and then annual average cost, benefit, net benefit, benefit cost ratio (B/C) were estimated for the animal husbandry and socioeconomic determinants of herd size of cattle keeping size were also analyzed. In the context of Gajuri rural municipality, the result showed animal husbandry in loss if benefits were calculated at local price and labour price were included but it seems to be beneficial if the benefits were calculated at market price. The similar result may not exist on another village and in whole Nepal as well. This is because the domesticated animals, socioeconomic determinants, cost of input and benefit from livestock may vary according to the locations.

While talking about the cost, feeding and labour costs were the major cost components which had occupied more than 90% out of total cost of the animal husbandry in study area. Popescu (2014), Singh, et al. (2012), Bhari and Yadav (2000) had also estimated the labour and feeding cost as a higher cost bearing items among the cost components. Similarly, Dahal and Dhakal (2016), Lepcha (2006), Adhikari (2000), Tulachan and Neupane (1919) had discussed the close relation between livestock farming and crop farming, same scenario discussed by them was found in study area i.e. manure produced from livestock had vital role in crop farming and crops residue and grains were also good source of feeding for livestock in study area. It was also found that, grass-based feeding is to be promoted rather than the grain-based feeding to reduce cost of animal husbandry. In the same context, Younghang (2013), Singh, Bharati and Kumar (2012), and FAO (2010) had also recommended for the promotion of grass-based feeding rather than the grain-based feeding to get more benefit with reducing cost. In addition, milk produced from cow and buffalo found to had share about two third out of total benefit received from the animal husbandry that means milk was the major source of income, which is the similar to the finding of Chaudhary and Updhaya (2013), Paudel (2015), Popescau (2014). On the other hand, farmers' benefit from milk had been affected by the rate of price for a fat of milk given to them. Therefore, better pricing policy on the basis of cost incurred in milk production could increase the benefit amount. The same issues had been also raised by Bhari and Yadav (2000), in their study.

Furthermore, most of the study had taken the dairy farming as a major basis for the study. But this study has tried to estimate cost and benefit of entire animal husbandry which

includes both dairy livestock and nondairy livestock tamed by the farmers in their herd. It was also found that cost incurred and benefit from dairy cattle was the major among than that of the other livestock.

On the other hand, socioeconomic factor like ethnicity, total land holding and remittance earning had affected the dairy cattle keeping size by the households, which ultimately found to have affected in cost and benefit as well. Similarly, the socioeconomic aspects of the animal husbandry had been also discussed in the study of Chaudhary and Updhaya (2013), as well as Younghang (2013).

Thus, study signifies that, animal husbandry in study area is major source of employment, income and economic empowerment as well. Though, the cost for the animal husbandry found to be higher, which can be reduced with promoting grass-based feeding instead of grain based and adopting the modern technologies in commercialized and innovative way. In addition, sincere concerns of authorized sector would also propel animal husbandry into a better position than present context.

Conclusion

The study shows that animal husbandry in study area was in loss if the benefits were calculated at local price and labour cost was included while analyzing the annual total annual cost and annual benefit at market price including and excluding labour cost were seemed to be profitable in the study area.

Hence, the farmers should be oriented toward the commercialized animal husbandry with minimizing input cost for the beneficial output. In addition, authorized sector should also implement the better plan and policies with analyzing internal and external factors for the upliftment of agricultural economy.

References

Adams, F., Ohene-Yankyera, K., Aidoo, R., & Wongnaa, C. A. (2021). Economic benefits of livestock management in Ghana. *Agricultural and Food Economics, 9*(17), 1-17. https://doi.org/10.1186/s40100-021-00191-7

Adhikari, J. (2000). *Decision for survival: Farm management strategies in the Middle Hills of Nepal*. Adroit Publishers.

Alvarado, E. (2013). *Cost benefit analysis of an agricultural project involving a smallholder production system* (Unpublished master's thesis). McGill University.

Bhari, R. P., & Yadav, R. N. (2000). Cost and break-even analysis of milk production in Lalitpur District. In *Proceedings of the Fourth National Workshop on Livestock and Fisheries Research in Nepal* (pp. 24–26). Agricultural Research Station, Pakhribas.

Chaudhary, B., & Upadhyaya, M. (2013). Socio-economic impact of dairy cooperative. *Economic Journal of Development Issues, 15 & 16*(1–2), 15–23. https://doi.org/10.3126/ejdi.v15i1-2.11859

Dahal, K. R., & Dhakal, S. C. (2016). *The relative efficiency of organic farming in Nepal* (Working Paper No. 107–16). SANDEE.

Diro, S., Getahun, W., Alemu, A., Yami, M., Mamo, T., & Mebratu, T. (2019). Cost and benefit analysis of dairy farms in the central highlands of Ethiopia. *Holetta Agricultural Research Centre, 29*(3), 29–47.

Food and Agriculture Organization (FAO). (2010). *Dairy sector study of Nepal*. UN Complex, Pulchok.

Fernandes, J. N., Hemsworth, P. H., Coleman, G. J., & Tilbrook, A. J. (2021). Costs and benefits of improving farm animal welfare. *Agriculture, 11*, 104. https://doi.org/10.3390/agriculture11020104

Humagai, B. P. (2001). *Livestock and cost of buffalo milk production: A case study of Kushadevi VDC of Kavrepalanchok* (Unpublished master's thesis). Patan Multiple Campus, Tribhuvan University.

Jenkins, G. P., Miklyaev, M., Basikiti, P. V., & Preotle, E. (2018). *Cost benefit analysis of agricultural interventions to enhance the production of cowpea, groundnuts, maize and soybeans value chains in Nigeria* [Discussion paper]. USAID.

Khan, G., & Khan, N. (2017). Cost benefit analysis of dairy farming in North India. *International Research Journal of Human Research and Social Sciences, 4*(8), 449–458.

Lepcha, D. (2006). *Livestock farming: Its linkages with agriculture and forest – A case study of Ranka Barbing Gram Panchayat Unit, Sikkim* (Unpublished master's thesis). Central Department of Geography, Tribhuvan University.

Majewski, E., Hamulczuk, M., Malak-Rawlikowska, A., Gębska, M., & Harvey, D. (2012). Cost-effectiveness assessment of improving animal welfare standards in the European agriculture.

Mburu, L. M., Gitu, K. W., & Wakhungu, J. W. (2007*). A cost benefit analysis of smallholder dairy cattle enterprises in different agro-ecological zones in Kenya highlands.* Ministry of Livestock and Fisheries Development.

Ministry of Finance. (2018). *Economic survey 2017/2018*. Government of Nepal.

National Animal Identification System (NAIS). (2009). *Benefit-cost analysis of the national animal identification system*. NAIS.

Ng'ang'a, S., Smith, G., Mwungu, C., Alemayehu, S., Girvetz, E., & Hyman, E. (2020). *Cost-benefit analysis of improved livestock management practices in the Oromia Lowlands of Ethiopia*. Crown Agents USA & Abt Associates.

Okedere, D. A., Ademola, P. Q., & Asiwaju, P. M. (2020). Performance and cost-benefit analysis of Isa Brown layers on different management systems. *Bulletin of the National Research Centre, 44,* 1–9. https://doi.org/10.1186/s42269-020-00332-w

Popescu, A. (2014). Research on milk cost, return and profitability in dairy farming. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development, 14*(2), 2219–223.

Sapkota, R., & Karmacharya, R. (2022). Economics of smallholder animal husbandry in Lalitpur District of Nepal. *Economic Journal of Development Issues, 34*(1–2), 61–84. https://doi.org/10.3126/ejdi.v34i1-2.63759

Thakur, N. S., Joshi, M., Tiwari, M. R., Shrestha, B., & Pandey, L. (2003). Socioeconomic study on goat farming: A case study of command area under ARS, Bandipur. In *Proceedings of the 2nd SAS-N Convention* (pp. 30 July–1 August). Nepal Agricultural Research Council.

Tulachan, P. M., & Neupane, A. (1999). *Livestock in mixed farming system of the Hindu Kush-Himalayas: Trends and sustainability*. International Centre for Integrated Mountain Development (ICIMOD). https://doi.org/10.53055/ICIMOD.309

Upadhyay, N., Timsina, K., Gairhe, S., Sapkota, S., Acharya, Y., & Khadka, S. (2017). Growth of livestock sector in Nepal: A perspective on agriculture perspective plan. In *Proceedings of the 10th National Workshop on Livestock and Fisheries Research in Nepal*.

Younghang, B. K. (2013). Livestock-based micro-enterprise and its effectiveness on poverty reduction: A study in Hansposa VDC of Sunsari District. *MicroEnterprises Development for Poverty Alleviation, II*, 77–82.