



## ANIMAL HUSBANDRY & VETERINARY SCIENCE | RESEARCH ARTICLE

# Factors affecting the profitability from goat farming in Gulmi, Nepal

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**Abstract:** Goats are an integral part of rural farm households from the early days of civilization. Goats are the most popular ruminant animal, which provides employment to women and young children. Survey research was conducted in Chatrakot Gaunpalika of Gulmi district to access the socio-economic factors of goat farming. The general objective of the research was to know the different goat farming practices and their contribution to household income. A total sample size of 120 were selected by using simple random sampling and 120 household surveys, 2 key informant interviews, and 4 focus group discussions were conducted to collect the information at household and community levels. The primary data were collected during Jan–Feb 2019 using a pretested questionnaire. All respondents were found integrated livestock farming and agriculture as a primary occupation for income. The average yearly income earned from goat farming was NRs.16, 540 (approx. US



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### PUBLIC INTEREST STATEMENT

Goats form an integral part of the mixed farming system in Nepal from early days of civilization. With crop-livestock mixed farming system's prevalence in Nepal, goat farming remains major stakeholder in case of livestock meat production due to its required environment, high value of meat, milk and other dairy products. The rural Nepalese production economy has a greater comparative and competitive advantage for enhancing goat meat production in view of increasing market demand.

\$141.5) per household, and goats were sold specially for meat purposes directly from the farm gate. Profitability in goat farming was found significantly associated positively with integrated feeding practices that include stall feeding and grazing ( $p = 0.03$ ) in goat farming, training to farmers ( $p = 0.07$ ), and demographic factors which include gender ( $p = 0.09$ ), ethnic group ( $p = 0.09$ ). The study pointed out that goat farming could be highly profitable under good availability of feeding materials, regular grazing, regular training about improved goat farming and scientific shed construction in the Gulmi district of Nepal and the productivity and contribution to livelihood can be improved by addressing different factors affecting goat farming practices.

**Subjects:** Statistics for Social Sciences; Social Work; Gender Studies -Soc Sci; Social Class; Development Communication; Ecological Economics

**Keywords:** Goat business; profitability; grazing land; food security

### 1. Introduction

Goats are an integral part of Nepal's mixed farming system since its early days. Small resource poor farmers, particularly women, are valuable income sources and serve as a security and liquid asset in times of need (Neupane et al., 2018; Sapkota et al., 2017). Furthermore, they make a significant contribution to livelihoods, providing an important source of meat, manure, leather and pack use. With crop-livestock mixed farming system's prevalence in Nepal, goat farming remains major stakeholder in case of livestock meat production due to its required environment, high value of meat, milk and other dairy products (Joshi et al., 2018). Goat-farming has become sources of food and nutritional security and very important means of poverty reduction in small-holder farmers. Even with its ubiquity in all region of Nepal due to its low initial investment cost, lack of proper training and expertise, and unavailability of proper commercial marketing channel, production and consequent income generation in small-holder farmer has been hindered since long. With existing huge population of goats with more than 12.28 million heads, MOALD (2019) reported that the population of goat in Nepal has been ever increasing with an average annual growth rate of 4.75% from 2001/02 (6.61 million) to 2014 (11.64 million). Goat contributes 20.69% to the total meat production of the nation and ranks in second position after buffalo (52.81%) with respect to meat production in Nepal (MOALD, 2019). And, as the increasing market value of goat meat in market, income generation from goat-farming is directly linked to the production and effective commercialization.

In Nepal, the constraints on goat production, compounded by smallholder producers lack of access to the appropriate breeding practice, has resulted in slower growth in goat related AGDP. Despite the visible goat farming for meat sub-sectors, the country has been unable to take advantage of the situation for various reasons. Some of the reasons include production constraints especially suitable breeds compounded by farmers' socioeconomic and institutional issues and their relationship with the market as a driving force. The rural Nepalese production economy has a greater comparative and competitive advantage for enhancing goat meat production in view of increasing market demand. Poor performance of the productivity of the goat is poor nutrition necessarily affected by the lack of the year-round feed supply. To reduce harsh situation of grazing alternatives should be found and, emphasis on agriculture research is important (Poudel, 2016). Efforts on community development have not shown impact because community members are not sufficiently empowered in terms of intra- and inter-family cohesion and trust in planning household/community level enterprises. Localized diffusion, unavailability of necessary technologies and expertise, and ineffective policies have become major hindrances to goat-meat production in this area (Karki & Bauer, 2004). With majority of villages dispersed randomly without proximity to major city, all the goat-farming technological extension programs are not being effective due to

limited reach of the village and transportation access. This also brings onto light, other major factors in any commercial scale meat production industry which are disease control and prevention, improved breeding technology, nutrition and feed management aggravating into never ending loop, without active intervention from related authority. Lack of marketing and related facilities such as storage, slaughterhouse and network of distribution system is preventing goat-meat production to reach its potential. Growth of interest among farmers about goat-farming and production of goat-meat in commercial scale is clearly not playing the role of balancing the increasing demand of goat-meat in the market by increased production. The general objectives of the research were to investigate the situation of goat farming at given scenario and access the factors affecting the production and income of the goat farming in Gulmi, Nepal.

## 2. Materials and methods

### 2.1. Study area and sampling design

Goat farming is one of the major farming activities in western hilly region of Nepal. Gulmi district is located in Lumbini Province approximately 30 km north of Mahendra highway in mid-hill part of the Nepal. Similar to other regions of Nepal, there is clearly established crop-livestock mixed farming system. Gulmi is one of the leading goat production districts with 148,294 goats population and 3,332 metric tons of total meat (981 MT of goat meat) which supplies majorly within the country. With increasing demand of meat, developing road infrastructure, and developing meat market in the region, goat farming is growing in popularity among farmers which comes with its own set of challenges and opportunities (MOALD 2019). Hence, Gulmi district was selected for this study especially focusing on factors affecting meat production and subsequent income generation. The Chatrakot Gaunpalika was purposively selected. The population and sampling frame was total goat farmers of this region, and samples were selected based on random sampling methods. A total of 118 households were randomly selected from the study area.

### 2.2. Data collection methods, data tabulation and analysis

Primary data were collected by the use of structured interview schedule using face-to-face interview technique with the goat farmers as primary respondents during the period of Jan-Feb 2019 using pretested questionnaire. Four Focus Group Discussions (FGD) involving which involved key farmers and livestock officer from the government working in this area with the researchers' team and two Key Informant Interviews (KII) with Livestock Development Officers from Agriculture Knowledge Centre, Gulmi were carried out to supplement the collected primary information and for situational analysis. Secondary data was collected from publications of various government and non-government organizations. The collected information from face-to-face interview was coded, entered and analyzed by using STATA and MS-Excel software. Profitability was measured in terms of improvement in net income across the years from goat farming. Factors affecting the perception of goat farming as profitable were derived from the use of binary logistic regression and descriptive statistics. SWOT analysis was carried out through the findings from FGDs and KI.

## 3. Results and discussion

### 3.1. Demographics and farm characteristics of goat farms

Among the total respondents 68.33% were females and 31.67% were males. Goats are small in size and easy to rear as compare to large ruminants (Cattle and Buffaloes) which suits women members in the family to look after (Khadka & Thapa, 2020; Neupane et al., 2018). Goats in the community were referred as "Pewa" for female members in 12.71% households so that they can sell them on their need. Most of the goat (70%) being reared were indigenous type (Khari) and rest were crossed Jamunapari cross breed which resembles to the breeds of goats in Nepal as indicated by Bhattarai et al. (2019) and majority of the goat keepers (90%) purchased goat from own village and 10% from adjoining villages. About 43.33% of the respondents were found to be involved in agriculture occupation only and 56.67% respondents were involved in both agricultural and non-agricultural activities (Governmental/private services, foreign employment, petty

shop and so on). The dominance of males was higher in non-agricultural activities. With respect to ethnicity, among the goat farmers, 34% of community people were Brahmin/Chhetri and rest 66% were Janjatis, Dalits and others, which creates an opportunity to expand the goat production among all ethnicity and the farmers in the survey area. With respect to food sufficiency, only 57.5% of the goat farms have year-round food self-sufficiency. Most of the farms (56.67 %) have constructed paved flooring and other farms have unpaved floors and the goats are held in khor during night. More than average (50.427%) respondents reported that they participated in the goat trainings from the technicians which encourage them for improved goat farming practices and feed management. Only 21.67% of the farms were involved in grazing the goats and supplement of the feeds in the stall and other farms had no provision of grazing and the feeds were supplied in the stall only. Rural farming system includes Khari goat as one of the primary components, constrained by poor breeding, inadequate feed management, and inadequate health provisions (Upreti, 2008). The watering to the animal was done twice a day. Since, the hilly area consists of only 26% arable land (CBS, 2012), and has less production and productivity and one of the best options to boost the livelihood the peoples are to increase the productivity of the livestock sector, i.e. goat (small ruminants) through breed and management improvement which is easily accepted by the low-income households Table 1.

### **3.2. Market system and technical services delivery**

Primarily goat meat was sold local market and the distant market included Butwal, Bhirahawa, and Kathmandu. The maximum, minimum and average holding of the goats per each household was found to be 18, 3 and 7 respectively and demand of the goat meat was reported to be higher during religious occasions. According to CBS (2012), average holding of goats in Nepal was 3.3 per household which showed that goat farming in this study location is more flourished at present. The average per kg price of the meat was found to be NRs. 650 (approx. US \$5.56) of the male goats (castrated and non-castrated) and NRs. 400 (approx. US \$3.42) of female goat. However, the per kg price of meat in the butchers was found to be NRs. 900 (approx. US \$7.70) in Butwal and NRs. 1300 (approx. US \$11.12) in Kathmandu, which might be due to transportation constraints for livestock handling and marketing leading for low price at local and high price in urban centre as reported by Sapkota et al. (2017).

The maximum, average, and minimum income of the goat farmers in the given area was NRs.1,00,200 (approx. US \$857.06), NRs. 32,450 (approx. US \$277.56) and NRs. 16,450 (approx. US \$140.7) respectively and only 28.33% of the respondents have adopted goat farming as the main source of income. The difference in net income differed between goat farms with the total number of goats sold in that year. Nevertheless, 71.67% have secondary source of income such as shop, foreign employment, agriculture etc. Majority of the farmers (90%) indicated no problems on selling the product where the goats are sold at their farm gate. Poudel (2016) also reported farmers generally sell their goats to local or regional traders. Moreover 10% of the people have marketing issue and issued problems related to more travelling cost for selling their products in the distant markets and lack of equilibrium in the price of the goat within the country. Nepali et al. (2007) reported the dependency towards middleman to sell the goat both in local and regional market. Similarly, Panth and Dhakal (2019) highlighted the importance of smallholders' linkage with the national production system for market sustainability. About 6.67% age of people has obtained the technical services from different institutions and according to the DLSO, required financial support for goat breeder herds were also received through annual programme and budget of the DLSOs under KUBK-ISFP intervention to the breeder farmers. Such support includes trainings, veterinary services, goat AI, forage and fodder, support for shed construction and improvement, etc. Poudel (2016) also found that technical services were delivered through government offices, and input delivery for necessary inputs mainly salt, veterinary medicines, and seeds of fodder and forages, was carried through agrovet, and private firms and some aid from government offices. The personnel involved in

goat tagging was local vet technicians and 90% of the respondent does not use tags for goats. Performance record, vaccination schedule, diseases outbreak, feed intake, income and expenditure of goat is maintained by only 32.5% of respondent and remaining did not keep the exact data base. Kharel and Pradhan (1988) reported the poor husbandry practices, and Jaishi et al. (2016) highlighted the lack of trained technician to guide farmers for effective management practices like, disease identification and vaccination, forage management, etc. which could be the possible constraints for non-profitable goat farming business. These findings were also applicable with this region.

### 3.3. Profitability of goat farming

The cost for goat farming was calculated from the information collected from focus group discussions, which involved key farmers and livestock officer from the government working in this area. The maximum goats that a farm can hold was reported to be 30 under local condition. The cost incurred involve the use of materials cost in the local condition, and the average production per goat would be NRS. 10,546 (approx. US \$90.2) in the first year of investment in goat farming. The cost would decrease in next years with elimination of fixed costs (shed construction costs and materials costs). The selling price per goat was taken to be NRs.18,000(approx. US \$154). The profit per goat would be NRs. 7,454(approx. US \$63.8). The B:C ratio of goat farming in such case would be 1.70 in the initial year of investment and would increase eventually in next years. Under elimination of shed construction cost (NRs. 1,50,000) to shed repairing cost (NRs. 20,000) in next year, the annual cost per goat would be approximately NRs. 6,214(approx. US \$53.2), profit per goat would be NRs. 11,786(approx. US \$100.8), and B:C ratio would be 2.89. Similar results for production cost of goats were reported in Banke district of Nepal (Bharati et al., 2021). Kumar et al. (2014) reported different B:C ratio (up to 2) for goat farming in local conditions in India, which supports our findings (Table 1).

**Table 1. Production cost for commercial goat farm in the study area**

Expenses inputs	Unit	Quantity	Rate	Average cost (NRs.)
Shed construction	-	-	-	1,50,000
Young goats	Head	30	NRs. 2500	75,000
Feed intake				50,000
Medications/ vaccination	Annually	-	-	10,000
Water tank				12,000
Buckets	Piece	10	NRs. 100	1,000
Water and electricity charge	Annual	-	-	1,400
Labor cost	Per head	1	10,000/per month	10,000
Grass plantation	Perennial grass	-	-	7,000
<b>Total cost</b>	<b>Annual</b>	-	-	<b>3,16,400</b>
<b>Cost per goat</b>	<b>Annual</b>	-	-	<b>10,546</b>
<b>Selling price per goat</b>	<b>Annual</b>	-	-	<b>18,000</b>

\*The cost estimation is according to the current value and it can be reduced by using maximum utilization of available resources.

Table 2 provides the list of variables and their descriptions, values that are used during econometric analysis

Table 2. List of variables for econometric analysis			
Variables	Descriptions	Values	Expected sign
Profitability	Perception about goat farming whether profitable or not to farmers through income	=1 if perception for goat farming is profitable, 0 otherwise	
Gender	Biological sex	=1 for Female, 0 otherwise	±
Ethnic group	Ethnicity	= 1 for Brahmin/Chhetri ; = 0 for Janjatis/Dalits	±
Major Occupation	Farmers occupation for major income source	= 1 only agriculture; = 0 if other sources (services, business, remittances etc.)	+
Year-round food sufficiency	Availability and access of food for goats	=1 for year-round sufficient, 0 otherwise	+
Availability of technical services	Access and regularity of technical experts when required	=1 for satisfaction with technical services access, 0 otherwise	+
Trainings to the farmers	Farmer's opportunity to participate on technical trainings provided from government extension services	=1 for farmer had opportunity for training, 0 otherwise	+
Shed type	Construction of shed for goats	=1 for paved constructed floors, 0 otherwise	+
Grazing with stall feeding	Provision of goats to grazing along with stall feeding	=1 if goats are grazed on regular basis provided with stall feeding, and 0 for only stall feeding	+
Treatments	Treatments of goats with medicines against diseases	=1 if treatment with medicines, =0 for traditional approaches	+
Tagging	Tagging of goats	=1 if tagging of goats was done, 0 otherwise	+
Herd Recording	Book recording of goats by farmer	=1 if complete recording of goats was carried out, 0 otherwise	+
Local Market	Access to local market	=1 for good marketing opportunity, and 0 for if restriction available	+

The profitability in goat farming is positively influenced by gender, ethnic groups, and trainings to the farmers at 10% level of significance, feed supplements at 5% level of significance (Table 3). It implies that the goat production in the survey area is influenced majorly by females due to their major involvement in the farming practices, upper classes (Brahmin/Chhetri) majorly due to the labor drain from the lower classes for the foreign employment and also involved in the day to day earning as the major income source rather than farming practices. Similar findings were found on the study by Maharjan et al. (2013) which reported the increased female engagement in goat farming with male members diverted for foreign employment out of home. Similarly, Paudel et al. (2009) has highlighted the gender importance in Western regions of Nepal. The trainings supplemented to the farmers for goat farming was significantly found to encourage for the upliftment of the production and income. The feeding of goat supply through grazing and home supplements has found to increase the income and production than feeding only at the sheds. Afridi et al. (2009) also reported that the goat farming and sheep farming to be more profitable due to high grazing and reproduction potential. A study carried by Degen et al. (2010) in Gorkha district of Nepal also reported the involvement of small farmers in goat business and the supplement of feed consisted 70% tree forages for goats. Goat business has been reported as the livelihood source for small farmers, efficiently manageable by females and children and need for the policymakers' strategies to utilize the remittance and reduce labor drain for Nepal (Neupane et al., 2018).

**Table 3. Logistic regression analysis with marginal effect after logistic analysis of profitability with the socio-economic variables in the study area**

Profitability	Odds Ratio	Std. Err.	z	p> z	dy/dx	p> z
Gender	2.39	1.25	1.66	0.09*	0.17	0.11
Ethnic group	2.21	1.05	1.67	0.09*	0.16	0.11
Major Occupation	2.31	1.41	1.38	0.16	0.16	0.17
Year-round food sufficiency	1.40	0.89	0.54	0.59	0.06	0.58
Availability of technical services	0.17	0.22	-1.40	0.16	-0.20	0.14
Trainings to the farmers	2.74	1.51	1.84	0.07*	0.18	0.06*
Shed type	0.72	0.36	-0.66	0.50	-0.06	0.51
Grazing with stall feeding	4.03	2.33	2.42	0.02**	0.30	0.02**
Treatments	1.44	0.85	0.66	0.51	0.07	0.48
Tagging	0.41	0.35	-1.03	0.30	-0.19	0.34
Herd Recording	1.90	0.39	1.31	0.19	0.12	0.20
Local Market	1.20	1.06	0.21	0.83	0.03	0.08

### 3.4. SWOT analysis of goat farming business

Information from Focus Group Discussions (FGDs) with farmers and Key Informant Interview(KII) with government officers was used for SWOT analysis (Table 4), which shows that goat farming and commercialization could improve the livelihood of small holders and goat entrepreneurship would be a good employment opportunity for youths with technical and market problems, resolved.

**Table 4. SWOT analysis of goat farming in the study area**

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Agriculture-oriented economy</li> <li>• Benefits and comparative advantage of goat farming in mid hills</li> <li>• Government and donor agencies promoting goat entrepreneurship and commercialization</li> <li>• Increased role of cooperatives and farming organizations for group farming</li> <li>• Increased awareness among the farmers regarding benefits of goat enterprises</li> </ul>	<p><b>Weakness</b></p> <ul style="list-style-type: none"> <li>• Limited feeds source and grazing land, especially in dry season</li> <li>• Quality medicine and other inputs are not available in time and are expensive</li> <li>• Lack of technical knowledge among rural farmers for commercial scale production</li> <li>• Lack of market information sharing and access to regional and national market</li> <li>• Low volume of production</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Increasing demand of meat</li> <li>• Increasing number of producers and traders</li> <li>• Favorable agricultural policies</li> <li>• Employment opportunity and low risk</li> <li>• Attract youth on agriculture entrepreneurship through many programs implemented by government like youth focused program.</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• High market margin and fluctuating market prices from local to national level</li> <li>• Youth emigration to the abroad leading labor scarcity</li> <li>• Pandemic disorders like Covid-19</li> <li>• Instable government policy</li> <li>• Climatic related vulnerability like drought, flood and landslide effects on grazing land and farm</li> </ul>

World bank (2014), Asian Development Bank (2011) and Agriculture Development Strategy (2014) has also highlighted the importance of profitable goat farming and need of commercialization for improving the livelihood of rural people (Khadka & Thapa, 2020). The strength of goat business is that it can be carried with nominal cost, has high returns, and are adaptable to harsh climatic conditions (Baruwa, 2013; Monteiro et al., 2017) and is a lucrative business for hilly and mountain region of Nepal (Khadka & Thapa, 2020). Shah et al. (2017) highlighted the importance of Government support mechanisms, which is relevant for Nepal. Jaishi et al. (2016) reported the need of proper technical services, seeds/sets of perennial forages, medicines and timely vaccinations to improve overall production. Neupane et al. (2018) reported the need for grazing lands for profitable goat business. Success of goat enterprises need well-organized market (Herold et al., 2011), which has been constraint for commercial goat farming in Nepal. Any business could be more profitable when its constraints are minimized and strengths are maximized, which is also applicable for goat farming business. Credit access, extension services, market linkages and insurance facilities for livestock are crucial for enhancing livestock productivity (Rasul et al., 2019). Increased foreign investment, livestock national strategy, youth entrepreneurship and remittance mobilization could be the opportunities while market risk, political hurdles, weather conditions, pandemic like Covid-19 can be threats for agriculture and livestock enterprises. A separate and integrated national livestock policy must be urgently developed and implemented with sufficient institutions to increase livestock production and productivity and diversification, trade and competitiveness in the livestock subsector, in accordance with the changing national and international contexts, Nepal needs to provide adequate institutional support and resources (Pradhanang et al., 2015).

#### 4. Conclusions

The profitability in the goat farming was majorly hindered due to the lack of improved farming practices and sufficient feed supply which includes regular grazing activity. Goat farming could be highly profitable under good availability of feeding materials, regular grazing, regular trainings about improved goat farming and scientific shed construction in Gulmi district of Nepal and the productivity and contribution to livelihood can be improved by addressing the different factors affecting its farming practices. The commercialization would be efficient and beneficial accessing different socio-factors and addressing knowledge on integrated farming practices.

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### Data availability statement

The authors confirm that the data supporting the findings of this study are available within the article [and/or] its supplementary materials.

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### References

- ADB. (2011). Proposed Grant for Nepal: High Mountain Agribusiness and Livelihood Improvement Project Report and Recommendations of the President to the Board of Directors. <https://www.adb.org/sites/default/files/project-document/61719/37292-04-nep-rp.pdf>
- Afridi, G. S., Ishaq, M., & Ahmad, S. (2009). Estimation of costs and returns and factor productivity in livestock enterprise in Northern Areas, Pakistan. *Pakistan Journal of Life and Social Sciences*, 7(1), 43–51. [https://www.researchgate.net/publication/268800759\\_Estimation\\_of\\_Costs\\_and\\_Returns\\_and\\_Factor\\_Productivity\\_in\\_Livestock\\_Enterprise\\_in\\_Northern\\_Areas\\_Pakistan](https://www.researchgate.net/publication/268800759_Estimation_of_Costs_and_Returns_and_Factor_Productivity_in_Livestock_Enterprise_in_Northern_Areas_Pakistan)
- Baruwa, O. I. (2013). Empirical analysis of costs and returns to goat production under tropical conditions. *Journal of Livestock Science*, 4(1), 44–50. <http://livestockscience.in/wp-content/uploads/2013/05/goat-baruwa-nigeria1.pdf>
- Bharati, S., Bc, L., & Sharma, A. (2021). A report on value chain analysis of goat in smart goat villages and non-smart villages of banke district.
- Bhattarai, N., Gorkhali, N. A., Kolakshyapati, M., & Sapkota, S. (2019). Breeds and breeding system of indigenous and crossbred goats in Nepal. In *Goats (Capra)-from ancient to modern*. IntechOpen. <http://dx.doi.org/10.5772/intechopen.82821>
- CBS. (2012). *Central bureau of statistics national population census*. National Report, National Planning Commission Secretariat.
- Degen, A. A., Pandey, L. N., Kam, M., Pandey, S. B., Upreti, C. R., & Osti, N. P. (2010). Goat production and fodder leaves offered by local villagers in the Mid-Hills of Nepal. *Human Ecology*, 38(5), 625–637. <https://doi.org/10.1007/s10745-010-9342-2>
- Herold, P., Markemann, A., & Zárate, A. V. (2011). Resource use, cattle performance and output patterns on different farm types in a mountainous province of northern Vietnam. *Animal Production Science*, 51(7), 650–661. <https://doi.org/10.1071/AN10032>
- Jaisi, M., Subedi, R., Dhital, B., Neupane, H., Khandal, A., Kattel, P., ... Research, D. of. (2016). Livelihood Assessment Report: Gorkha Recovery and Resilience Program, Nepal. Technical Advisory Service Project. Kathmandu: Institute of Agriculture and Animal Science
- Joshi, A., Kalauni, D., & Bhattarai, N. (2018). Factors affecting productive and reproductive traits of indigenous goats in Nepal. *Archives of Veterinary Science and Medicine*, 1(1), 19–27. <https://doi.org/10.26502/avsm.003>
- Karki, L. B., & Bauer, S. (2004, October). Technology adoption and household food security. Analyzing factors determining technology adoption and impact of project intervention: A case of smallholder peasants in Nepal. Proceedings of Deutscher Tropentag Workshop (pp. 5–7).
- Khadka, M. S., & Thapa, G. (2020). Economic and financial returns of livestock agribusiness in high mountains of Nepal. *Journal of Agriculture and Rural Development in the Tropics and Subtropics (JARTS)*, 121(2), 251–263.
- Kharel, M., & Pradhan, S. L. (1988). Goat meat production in Nepal. Goat meat production in Asia: proceedings of a workshop held in Tando Jam, Pakistan, 13–18 Mar. 1988. IDRC, Ottawa, ON, CA.
- Kumar, U. P. E. N. D., Reader, R. A., Singh, M. L., Balwada, R. G., & Chaturvedi, D. (2014). Economics of goat farming under traditional low input production system in Bikaner district. *Asian Journal of Animal Science*, 9(2), 160–163. <https://doi.org/10.15740/HAS/TAJAS/9.2/160-163>
- Maharjan, A., Bauer, S., & Knerr, B. (2013). *Migration for labour and its impact on farm production in Nepal*. Centre for the Study of Labour and Mobility.
- MOALD. (2019). *Statistical Information on Nepalese Agriculture*. Government of Nepal.
- Monteiro, A., Costa, J. M., & Lima, M. J. (2017). Goat system productions: Advantages and disadvantages to the animal, environment and farmer. In *Goat science* (pp. 351–366). IntechOpen.
- Nepal, M. (2014). *Agriculture Development Strategy*. Kathmandu: Ministry of Agricultural Development. <http://www.dls.gov.np/uploads/files/ADS%20Final.pdf>
- Nepali, M. B., Tiwari, M. R., Sapkota, S., Poudel, H. P., Acharya, B. R., & Gautam, S. (2007). Marketing constraints to goats in the Western Hill of Nepal. *Nepal Agriculture Research Journal*, 8(1), 95–102. <https://doi.org/10.3126/narj.v8i0.11601>
- Neupane, N., Neupane, H., & Dhital, B. (2018). A socioeconomic view of status and prospects of goat farming in rural areas of Nepal. *Journal of the Institute of Agriculture and Animal Science*, 35(1), 1–8. <https://doi.org/10.3126/jiaas.v35i1.22508>
- Panth, B. P., & Dhakal, S. C. (2019). Determinants of mandarin productivity and causes of citrus decline in Parbat District, Nepal. *Acta Scientifica Agriculture*, 3(10), 14–19. <https://doi.org/10.31080/ASAG.2019.03.0638>
- Paudel, L. N., Ter Meulen, U., Wollny, C., Dahal, H., & Gauly, M. (2009). *Gender aspects in livestock farming: Pertinent*

- issues for sustainable livestock development in Nepal. Livestock Research for Rural Development*, 21(3).
- Poudel, D. (2016). *Goat meat industry in Nepal: Opportunities and challenges*. <http://biruwa.net/2018/03/goat-meat-industry-nepal-opportunities-challenges/>
- Pradhanang, U. B., Pradhanang, S. M., Sthapit, A., Krakauer, N. Y., Jha, A., & Lakhankar, T. (2015). National livestock policy of Nepal: Needs and opportunities. *Agriculture*, 5(1), 103–131. <https://doi.org/10.3390/agriculture5010103>
- Rasul, G., Saboor, A., Tiwari, P. C., Hussain, A., Ghosh, N., & Chettri, G. B. (2019). Food and nutrition security in the Hindu Kush Himalaya: Unique challenges and niche opportunities. In *The Hindu Kush Himalaya assessment* (pp. 301–338). Springer.
- Sapkota, S., Gairhe, S., Kolakshyapati, M., Upadhaya, N., Acharya, Y., & Ghimire, Y. N. (2017, March). Role of women in goat farming in mid hills of Nepal. Proceeding of the 10th National Workshop on Livestock and Fisheries Research in Nepal (Vol. 5, p. 7).
- Shah, G. M., Khadka, M. S., Ahmad, F., Budhathoki, N., & Shrestha, A. J. (2017). Assessment of Himalayan Nettle (*Girardinia diversifolia*) value chain development interventions: Evidences from rural households in the Far Western Nepal. *Journal of Agricultural Science*, 9(5), 19–32. <https://doi.org/10.5539/jas.v9n5p19>
- Upreti, C. R. (2008). Food security contribution and vision of sustainable goat production in Nepal. *Agricultural Resea Agricultural Research For Poverty Rch For Poverty Alleviation And Livelihood Enhancement*, 27, 299.
- World Bank. (2014). Nepal: Agriculture Commercialization and Trade. <http://worldbank.org/en/results/2014/04/11/nepal-agriculture-commercialization-and-trade>.



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