RESEARCH ARTICLE

SOCIO-ECONOMIC STUDY OF POULTRY RAISING FARMERS IN TULSIPUR MUNICIPALITY OF DANG DISTRICT

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ABSTRACT

Mainly in developing nations poultry is one of the rapid growing segments of agricultural economy; it has not only the nutritive value but also the short payback period; high benefit cost ratio. Regarding overall economics of production and marketing, only few research activities has been conducted. This study was conducted in Tulsipur Municipality of Dang district of Nepal within which Ashwar and Gahatey Khola with ward no. 08 and 09 respectively were studied as they host many poultry raisers. The objective was to scrutinize the socio-economic status, production efficiency, problems and supporting factors for poultry production and marketing. Benefit cost analysis, gross margin were statistically analyzed in order to determine the production efficiency. In terms of poultry loan utility, loan takers were higher as compared to non-loan taker in the study area. In terms of gross margin, there was no any significant difference between the per bird (layers) gross margin of Gahatey Khola and the Ashwar. Per bird and per kg gross margin of broilers of Ashwar was found significantly higher than the Gahatey Khola. The benefit cost ratio of Ashwar was found higher than Gahatey Khola in terms of layers production. The benefit cost ratio of broiler production per bird as well as per Kg body weight was found higher in Ashwar than Gahatey Khola respectively which signifies good profitability of broiler production in Ashwar area as compared to Gahatey Khola. Broilers or layers in terms of enterprise, numbers of labors and amount of loan taken have been found to significantly affect the level of revenue garnered from the business. The study finally asserted that layers were the most lucrative enterprise in both the study area.

KEYWORDS

Agricultural economy, meat production, poultry, socio-economic status.

1. INTRODUCTION

Poultry products like meat and egg have been considered as the fastest way to fulfill protein supply to human in shortest run. FAO has recommended the average daily intake of protein by an individual should be around 65 gm of which more than 50% should be from the animal source (FAO, 2009). Recently poultry industry has been increasing rapidly with well-equipped housing system in most of the developed countries. Many marginal poultry farmers with small scale of farming are engaged in poultry rearing in least developing countries as their business for livelihood (Alders and Pym 2009). Agriculture is the boon for Nepalese Economy. Around 65.6 % of Nepalese people depend on agriculture for their livelihood contributing about 31.2% of national gross domestic product (GDP) (MoAD, 2017; MoAD, 2017). Livestock sector in Nepal contributes 11.5% of national GDP (CBS, 2011). With regard to AGDP, it contributes about 25.68% (MoAD, 2014). Among livestock sector, poultry sector is emerging as an important sub-sector and is contributing significantly to total livestock GDP.

A broiler or fryer is a young chicken of either sex below 8 to 10 weeks of age weighing 1.5 to 2 kg body weight, with a tender meat soft, pliable smooth textured and flexible breast (Banerjee, 2013). The female poultry bird which is reared for an egg laying is known as layers. These are

sexually mature birds producing an egg. Globally, Nepal ranks 112th in terms of chicken meat production and 92nd with regard to egg production (Poultry sector Nepal reviewed by FAO, 2014). Total population of poultry in Nepal is about 6.86 crores, out of which population of poultry reared for meat purpose (broiler and other breeds) is about 5.6 crores and rest of the population is reared for egg purpose. About 55 thousand Mt. meat was produced from the above population (MoAD, 2017). Fowl population accounts for 47.96 million in Nepal with 28.3% laying hen producing 887.24 million table eggs. During last ten years average annual growth rate of hen egg production has been 2.43% (Osti et al., 2016). In Nepal, Chitwan, Kathmandu and Kaski are the major district with higher number of poultry farms (MoAC, 2014).

Number of fowl in Dang district of Nepal is 2285270 (MoAD, 2017). Net chicken meat production by Dang district is 1218 metric ton (MoAD, 2017). Although the poultry enterprise is being expanding, there are several hindrances in its flourishing (MoAC, 2013). Failure to engender substantial return from the enterprise, lack of technical know-how and efficient management practices, higher cost of production due to the rise in cost of chicks and feed are the main factors that makes the profitability of farmers a doubt (Osti et al., 2016). Existing traditional and conventional subsistence farming system, rural infrastructure facilities, inadequate market information system and technological extension, unavailability of

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sufficient quantity of quality production inputs, and weak linkage among stakeholders are some other factors hindering the rapid development of the livestock sector. Keeping these aspects in regard, this research was conducted to accomplish the following objectives:

- To scrutinize the socio-economic status (age, ethnicity, sex, income, education, experience and occupation) of poultry rearing farmers in the study area
- To examine production efficiency (benefit cost ratio and gross margin) of the enterprise
- To study problems and supporting factors for poultry production and marketing

2. MATERIAL AND METHODS

The research methodology consists of the procedure involved in selection of research site, sampling procedure and determination of sample size, source of data, data collection techniques, analysis of data and their interpretation.

2.1 Selection of site

The study was conducted in Tulsipur sub-metropolitan city in Dang district of Province No. 5 of Nepal which is located in 28.1545°N 82.3235°E at 725 masl. It covers an area 384.63 km² and had a population of 141528 (CBS, 2011). Tulsipur municipality was selected for our study within which Ashwar and Gahatey Khola with ward no. 08 and 09 respectively were studied. The respective sites were purposively chosen as they host many poultry raisers in the municipality area. The study was undertaken in year 2019 AD.

Figure 1: Map of Nepal

2.2 Sampling and Sample Size

A purposive sampling technique was used to conduct the study. The poultry (layers or broilers) raisers households of Tulsipur municipality of Dang district were selected as the sample population of this study. Commercial, semi-commercial and semi-subsistence poultry raising farmers those who are loan taker or non-loan taker were selected as the respondent by consulting the District Agriculture Development Office (DADO), Agricultural Banks, Agricultural Cooperatives, Development Banks and key informants. A total of 60 households, 30 from Ashwar and 30 from Gahatey Khola village of Tulsipur municipality, Dang were interviewed.

2.3 Methods of Data Collection

Both primary and secondary data were collected and analysed subsequently. The pre-tested interview schedule was administered to the sample farmers, branch manager of banks for the collection of primary data. These data were obtained through household survey, focus group discussion and key informant interview for understanding cost of production, return, existing problems of production and marketing, and mode of selling and loan amount taken. Both qualitative and quantitative data were collected using pre-tested questionnaire. Secondary information was collected from the annual reports of different financial institutions located in Tulsipur, Dang.

2.4 Interview Design

The interview survey design was constructed to collect primary information from the commercial, semi-commercial and semi-subsistence poultry raising farmers those who are loan taker or non-loan taker.

2.5 Pre testing

Questionnaire was pre tested with 10% farmers in the adjoining area of the study sites.

2.6 Field Survey

The pre-tested interview questionnaire was administered to the selected respondent of the study area to collect the primary data. During the interview, all the information's were asked in detail. Individual farmers were interviewed for discussion and ranking some parameters to obtain quantitative data. The flocks, watering and feeding methods, the feed store and egg store room, the design for the poultry housing, affiliated environment, etc. were personally observed by the researchers and finally qualitative data was obtained.

2.7 Data entry and analysis

Data entry and analysis was done by using computer software packages like the Statistical Package for Social Science (SPSS), and Microsoft Excel.

2.8 Indexing

Various problems were ranked with the use of index. Scaling techniques, which provides the direction and extremity attitude of the respondent towards any proposition was used to construct index. The intensity of production and marketing of poultry related problem being faced by the poultry farmers respectively were identified by using three-point scaling technique comparing severe, moderate and slight using scores of 3, 2 and 1 respectively.

Following formula was used to find the index for intensity of various problems.

$$I_{\text{prob}} = \frac{\sum S_i f_i}{N}$$

Where, I_{prob} = index value for intensity of problem; $\sum$ = Summation, S_i = Scale value of i^{th} intensity; f_i = Frequency of i^{th} response; N = Total number of observations

Figure 2: Scale value for indexing of problems

Similarly, different analytical terminologies were used during the analysis.

- Total cost = $\sum$ Cost incurred in all variable and fixed items
- B/C ratio = Gross return/ Total cost

For the estimation of effects of different variables on total revenue from poultry production using cross-sectional data, multiple linear regression models were done.

3. RESULT AND DISCUSSION

This section deals with the household and farm characteristics, economics of poultry production, gross margin analysis, benefit- cost analysis, factors affecting total revenue from poultry production, production problems of birds and eggs, trend analysis of production of eggs and meat in Dang and Nepal as a whole and strength, weakness, opportunity and threats of poultry production in Nepal.

3.1 Household and farm characteristics

3.1.1 Gender based Population distribution

The total population of 60 sampled households was found 302 with 49% in Gahatey Khola village and 51% in Ashwar village of Tulsipur municipality. Slightly higher proportion of male was found in both Gahatey Khola and Ashwar. The average population in terms of gender was 51.65% male and 48.35% of female. There were more or less same number of male and female which clarifies that not only male but female were also playing key role as labor in running the enterprise. This is in accordance with the findings of Sharma (2010) who reported that poultry enterprise creates the employment to women and rural people in Nepal.

Table 1: Population distribution of sampled households by gender

Gender/study area	Gahatey Khola		Ashwar		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Male	77	52.03	79	51.30	156	51.65
Female	71	47.97	75	48.70	146	48.35
Total	148	100	154	100	302	100

3.1.2 Family size and the type

Generally family size of the study area determines the availability of labors to the poultry production. Therefore, average family size of the households was calculated. The overall average family size of the study area was found 5.03, which was higher than that of national average family size (4.70) in 2011 (CBS, 2012). The average family size of Ashwar was found higher than that of Gahatey Khola.

Table 2: Family size of surveyed households

Study area	Average family size
Gahatey Khola (n=30)	4.93
Ashwar (n=30)	5.13
Total(N=60)	5.03

3.1.3 Family type

In terms of family type, majority of the sample households (65%) were found to be nuclear family. In Gahatey Khola, majority of the sample households were found to be nuclear which is thrice than the joint family in the area. However, nuclear and joint families were more or less similar in Ashwar area. The result from the table below shows that nuclear family is more in Gahatey Khola which can be co-related with education level of household head which is more in Gahatey Khola area.

Table 3: Distribution of sampled households by family type

Family type/ study area	Gahatey Khola	Ashwar	Total
Joint	7 (23.33%)	14 (46.67%)	21 (35%)
Nuclear	23 (76.67%)	16 (53.33%)	39 (65%)
Total	30 (100%)	30 (100%)	60 (100%)

3.1.4 Economically active population

The population age groups of (15-59) years are economically active population. There were similar proportion of economically inactive population and economically active population in the study area. The proportion of economically active population is greater in Ashwar and lower in Gahatey Khola.

Table 4: Population distribution of sampled households by age group

Population	Gahatey Khola		Ashwar		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Economically inactive	60	40.54	63	40.90	123	40.73
Economically active	88	59.46	91	59.10	179	59.27
Total	148	100	154	100	302	100

3.1.5 Ethnicity of the household

Majority of household heads were Chhetri (50%) followed by Brahmin (40%), Janajati (6.67%) and Dalits (3.33%) in the study area. In Gahatey Khola, majority were Brahmin (63.34%) followed by Chhetri (33.33%) and Janajati (3.33%). However, in Gahatey Khola area Dalits were not found in the sampled households. In Ashwar area, Chhetri (66.66%) were the highest followed by Brahmin (16.67%), Janajati (10%) and Dalits (6.67%).

Table 5: Household head ethnicity

Ethnicity /Study area	Gahatey Khola		Ashwar		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Brahmin	19	63.34	5	16.67	24	40
Chhetri	10	33.33	20	66.66	30	50
Janajati	1	3.33	3	10	4	6.67
Dalits	0	0	2	6.67	2	3.33
Total	30	100	30	100	60	100

3.1.6 Education of the sampled household head

The highest education level in both Ashwar and Gahatey Khola area was SLC with the percentage value of (36.67%) and (26.66%) respectively. In Gahatey Khola area none of the respondents were illiterate. 3 (10%) respondents were literate, 2 (6.67%) respondents have primary education level, 5 (16.67%) respondents have lower secondary level of education and 6 (20%) respondent have +2 and Bachelor level of education. Similarly, in Ashwar area, none of the respondents have Bachelor and above level of education level. 4 (13.33%) respondents were illiterate, 4 (13.33%) respondents were literate, only 1 (3.33%) have primary education level, 5 (16.67%) respondents have lower secondary level of education and 5 (16.67%) respondent have +2 level of education. However, Osti et al. (2016) in their research reported 63.34% of the respondent with tertiary education, 28.33% and 8.33% with secondary and primary education, respectively.

Table 6: Distribution of sampled respondents by education level

Education status/study area	Gahatey Khola		Ashwar		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Illiterate	0	0	4	13.33	4	6.67
Literate	3	10	4	13.33	7	11.67
Primary	2	6.67	1	3.33	3	5
Lower Secondary	5	16.67	5	16.67	10	16.67
SLC	8	26.66	11	36.67	19	31.66
+2	6	20	5	16.67	11	18.33
Bachelor & above	6	20	0	0	6	10
Total	30	100	30	100	60	100

3.2 Land availability and distribution

There are mainly two types of land namely upland and lowland. Most prevalent land was lowland in the study area. In Gahatey Khola area, mostly lowland was present (311 kattha) while upland (221 kattha) was prevalent in Ashwar area. The overall size of land was 15.65 kattha per household, which is less than the average national land holding (0.68 ha/ 20.4 kattha) in 2011 (CBS, 2012). The average land holding in Gahatey Khola area was 18.40 kattha and in Ashwar area was 12.90 kattha. Independent sample test was done which indicated significantly lower land holding of household in Ashwar area as compared to Gahatey Khola ($t = -1.396$, $p = 0.005$) (Table 7).

Table 7: Land distribution pattern

Study area	Land holding (Kattha)		
	Total	Average	Standard deviation
Gahatey Khola(n=30)	552	18.40	19.17182
Ashwar (n=30)	387	12.90	9.91464
Total(N=60)	939	15.65	14.54323

3.3 Poultry loan utility

In terms of poultry loan utility, loan takers (60%) were higher as compare to non-loan taker (40%) in the study area. In Gahatey Khola area loan takers were double as compare to non-loan takers. However, loan taker and non-loan takers were found similar in Ashwar area. The details of type of households in terms of loan utility are shown in Table 8.

Table 8: Type of household in terms of loan utility

Type of household/ study area	Gahatey Khola	Ashwar	Total
Loan taker	20(66.67%)	16(53.33%)	36(60%)
Non loan taker	10(33.33%)	14(46.67%)	24(40%)
Total	30(100%)	30(100%)	60(100%)

3.4 Experience in Poultry rearing

In terms of experience in poultry rearing, 63.34% farmers in the study area of 60 households were found to have less than 5 years of experience followed by 5 to 10 years of experience (30%). Similarly, 56.67% and 70% farmers in Gahatey Khola and Ashwar have less than 5 years of experience respectively. This indicates that most of the farmers are in the initial phase of the poultry enterprise. Since majority of the farmers have less than 5 years of experience, this means they have entered into this enterprise recently being aware of the economic advantage of this enterprise.

Table 9: Distribution of sampled respondents by experience of poultry rearing

Experience/ study area	Gahatey Khola		Ashwar		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Less than 5 years	17	56.67	21	70	38	63.34
5 to 10 years	10	33.33	8	26.67	18	30
10 to 15 years	1	3.33	1	3.33	2	3.33
More than 15	2	6.67	0	0	2	3.33
Total	30	100	30	100	60	100

3.5 Poultry producer in study area

In terms of poultry producer, majority of the sample households (61.67%) were rearing broilers. In Gahatey Khola area, majority of the sample household (63.33%) were rearing layers. This indicates that Gahatey Khola area have greater potentiality of establishing itself as a commercial layers poultry hub. Similarly, in Ashwar area, majority of the sample household (86.67%) were rearing broilers. This indicates that Ashwar area have greater potentiality of establishing itself as a broiler poultry hub.

Table 10: Type of household in terms of poultry producers

Poultry producer/ study area	Gahatey Khola	Ashwar	Total
Layers	19 (63.33%)	4 (13.33%)	23 (38.33%)
Broilers	11(36.67%)	26 (86.67%)	37 (61.67%)
Total	30(100%)	30(100%)	60(100%)

3.6 Economics of poultry

This section deals with various aspects of poultry production such as types of training taken by farmers, training provided by various sources, cost of production, revenue, gross margin analysis and benefit- cost analysis.

3.7 Types of training taken in the study area

In the study area, out of 60 household 49 (81.7%) had taken training on poultry rearing while 11 (18.3%) had not taken any kinds of training. In Gahatey Khola more numbers of household 26 (53.1%) had taken training on poultry rearing as compare to Ashwar 23 (46.9%).

Table 11: Types of training taken

Study area	Poultry rearing	No training	Total
Gahatey Khola	26 (53.1%)	4 (36.4%)	30 (50%)
Ashwar	23 (46.9%)	7 (63.6%)	30 (50%)
Total	49 (81.7%)	11 (18.3%)	60 (100%)

3.8 Training taken from different sources

In the study area, out of 60 household feed companies had provided training to 31 (51.7%) households followed by Poultry association 13 (21.7%) and Local development bodies 5 (8.3%). Feed companies had provided training to more or less equal numbers of households in both of the study area. However, poultry association had provided training to more number of households in Gahatey Khola 9 (69.2%) as compared to Ashwar 4 (30.8%).

Table 12: Training taken from different sources.

Study area	Feed companies	Poultry association	Local development bodies	No training	Total
Gahatey Khola	15 (48.4%)	9 (69.2%)	2 (40%)	4 (36.4%)	30 (50%)
Ashwar	16 (51.6%)	4 (30.8%)	3 (60%)	7 (63.6%)	30 (50%)
Total	31 (51.7%)	13 (21.7%)	5 (8.3%)	11 (18.3%)	60 (100%)

3.9 Gross margin analysis

Gross margin was analyzed in sampled farmers of both Gahatey Khola and Ashwar. Gross margin is the function of productivity, price of per unit output and total variable cost. Productivity and per unit price of output have positive relationship and total variable cost has negative relationship with gross margin. Independent sample test was done in order to find out any significant difference between per bird gross margin of Gahatey Khola area and the Ashwar area. The result doesn't have any significant difference between per bird gross margin of Gahatey Khola area and the Ashwar area ($t = -0.60$, $p = 0.499$) for layers production. Ekunwe reported a gross margin of N 3487.8 per bird in Nigeria equivalent to Rs.1046.34. This shows that layer rearing is more profitable in our study area than in Nigeria.

The per bird and per kg gross margin of Ashwar area was found significantly higher than the Gahatey Khola area ($t = 0.767$, $p = 0.034$) and ($t = 0.727$, $p = 0.032$) respectively. It indicates that the people in Ashwar area sold more live birds and in higher price than the Gahatey Khola. More mortality and fewer market prices resulted in the negative gross margin in Gahatey Khola area. However, Etuah et al. (2013) in their research reported a gross margin of GHc3.95 per bird equivalent to NRs. 69.34 which is higher than what we found in our research.

Table 13: Gross margin analysis of layers and broilers production

Study area	Layers Gross margin (NPR/bird)	Broilers Gross margin (NPR/bird)	Broilers Gross margin (NPR/Kg)
Gahatey Khola	1819.452	-18.037	-7.214
Ashwar	1804.424	31.409	11.486
Total	1811.938	6.686	2.136

3.10 Benefit- cost ratio of poultry production

Average total variable cost and average total revenue per household was calculated for profitability analysis. The benefit cost ratio of Ashwar was found higher than Gahatey Khola in terms of layers production i.e. Gahatey Khola (1.59) and Ashwar (1.61) which signified good profitability of layers production in both areas which is higher than the benefit cost ratio of layers farms raised under intensive management system in Bangladesh with 1.15 B: C ratio (Masud and Real, 2013). Moreover, Osti et al. (2016) found overall benefit cost ratio of 1.33 ± 0.04 in layers production in Chitwan district of Nepal which is higher than what we obtained in our findings.

The benefit cost ratio of Ashwar was found higher than Gahatey Khola in terms of broiler production per bird as well as weight of the bird of Gahatey Khola with (0.96, 0.96) and Ashwar (1.06, 1.07) respectively which signified good profitability of broiler production in Ashwar area as compared to Gahatey Khola. However, the benefit cost ratio in terms of broilers production in our study areas was lower than the benefit cost ratio of broilers farms raised under intensive management system in Bangladesh with 1.15 B: C ratio and 1.11 B: C ratio in Anand district of Gujarat (Shaikh and Zala, 2005; Masud and Real, 2013).

The B/C ratio of broiler production was found to be less than 1 in Gahatey Khola area. a group researcher in their research in Rawalpindi district of Pakistan reported benefit cost ratios of 0.95, 1.10 and 1.34 for small, medium and large farms respectively (Mohsin et al., 2008). B: C ratio of less than 1 was observed in small farms which shows those farmers were in loss which is in accordance with what we obtained in Gahatey khola. In Gahatey Khola, most of the people did not practice full schedule of

vaccination and medication as prescribed by the feed and poultry suppliers. Since broilers have low immune power, insufficient dose of vaccination and medication led to more mortality in Gahatey Khola area. Besides, people in the area did not maintain proper sanitation in the farm which led to the problem of diseases (Escherichia coli, H₉N₂-Avian influenza).

Table 14: Benefit/cost analysis of layers and broilers production

Study area	Layers Average revenue (Rs/bird)	Layers Average cost (Rs/bird)	Layers Variable B/C ratio	Broilers Average revenue (Rs/bird)	Broilers Average cost (Rs/bird)	Broilers Variable B:C ratio	Broilers Average revenue (Rs/Kg)	Broilers Average cost (Rs/Kg)	Broilers Variable B:C ratio
Gahatey Khola	4876.11	3056.65	1.59	182.10	189.31	0.96	455.25	473.29	0.96
Ashwar	4758.40	2953.97	1.61	182.92	171.44	1.06	457.66	426.25	1.07
Total	4817.25	3005.31	1.60	182.51	180.38	1.01	456.46	449.77	1.01

3.11 Factors affecting total revenue from poultry production

Explanatory variables used in the model were experience of poultry rearing, number of labors, amount of loan taken, types of training taken, layers/ broilers enterprise, gender of household head, family size, family size and training taken for poultry rearing were found significant. The dependent variable was total revenue from poultry production. From linear regression analysis, it was found that 92.7% changes in the dependent variable i.e. total revenue from poultry production was due to the factors considered in the analysis while rest of the changes was due to other factors not considered in the analysis. Broilers or layers in terms of enterprise, numbers of labors and amount of loan taken have been found to significantly affect the level of revenue garnered from the business. However, several social parameters like family size, age of farmers and number of laying birds were found significantly affecting the poultry business (Osti et al., 2016).

Table 15: Factors affecting total revenue from poultry enterprise

Variables	Estimated Coefficients	P- Value
Constant		0.381
Experience of poultry rearing	0.055	0.198
Number of labors	0.382***	0.000
Amount of loan taken (Rs.)	0.507***	0.000
Types of training taken	0.009	0.901
Layers/ Broilers enterprise	-0.136**	0.004
Gender of household head	0.071	0.072
Family size	0.073	0.148
Family size	0.040	0.387
Training taken for poultry raising	-0.066	0.334
Adjusted R square	0.927	0.000

***Significant at 1 percent level of significance, **Significant at 5 percent level of significance.

3.12 Production problems of poultry producers

Different production problems were perceived and reported differently by poultry growing farmers in the study areas. In case of Gahatey Khola area, problem of low price of eggs and birds got the first priority followed by problem of high cost of feed and equipments, lack of well-equipped disease diagnostic lab, lack of technical supports services from DLSo, labor shortage and problem of availability of feed and equipments. Similarly, in Ashwar, problem of price of eggs and birds got the highest priority. However, problem of high cost of feed and equipments and lack of well-equipped disease diagnostic lab were ranked second. Problem of price of eggs and birds is due to monopoly of feed industry and poultry association and as well as poor government's provision for price fixation. Our findings are in accordance with who noted that the first and foremost problem faced by the farmers was too much fluctuation of chicks and feed prices followed by high cost of medication and vaccination, and their poor quality (Mozumdar et al., 2009).

Similar results were obtained by Panda who reported the high cost of feed, the lack of suitable health care facilities and the absence of efficient marketing structures in much of southern Asia as the major obstacles to the rapid development of poultry production (Panda, 1989). High cost of production, immune-suppression and vaccination failure, lack of well-equipped disease diagnostic lab, over use of antibiotics and antibiotics resistance, new diseases challenge, unstable market for egg and meat are some of the constraints hindering the production of poultry in Nepal (Acharya and Kaphle, 2015). More or less similar findings were reported by who asserted the problems connected with poultry production as diseases, feed, inadequate supply of vaccines and medicines, and the marketing of broilers and eggs in Bangladesh (Ahmed, 1988). According to the availability of chicks was the top problem in the rural area of Fulbaria Upazila, Bangladesh, whereas the supply of an optimal amount of feed and lack of medicine were ranked as second- and fifth-most important problems (Hai et al., 2008).

Table 16: Production problem of poultry in Gahatey Khola area and Ashwar

Production Problem in Gahatey Khola			Production Problem in Ashwar	
Problems	Index Value	Rank	Index Value	Rank
Low price of eggs and birds	3.00	1	2.80	1
High cost of feed and equipments	2.43	2	2.33	2
Lack of well equipped disease diagnostic lab	2.03	3	2.33	2
Lack of technical supports services from DLSo	1.93	4	2.13	3
Labor shortage	1.40	5	1.17	4
Availability of feed and equipments	1.20	6	1.17	4

3.13 Supporting infrastructures for poultry producers

Different supporting infrastructures were seen in the study area for poultry production. In Gahatey Khola area, building construction was in highest priority followed by road and transport, credit availability, poultry market, collection center and poultry clinic. The building construction was in highest priority because most of the farmers here were rearing layers and most of them were loan takers as well. The layers were kept in modern sophisticated farms which have contributed to bird's health and performance. However in Ashwar area, road and transport was in first priority followed by building construction, price variation, credit availability, poultry market, poultry clinic and collection center. The road and transport facility was in highest priority because the road connecting Ashwar to the Tulsipur market was in Proper condition which facilitated in easy access of inputs (birds, feed, vaccination, medicine, packaging material) in time and easy marketing of output (eggs, birds).

Table 17: Supporting infrastructures for poultry producers in Gahatey Khola and Ashwar

Supporting infrastructures in Gahatey Khola			Supporting infrastructures in Ashwar	
Supporting infrastructure	Index Value	Rank	Index Value	Rank
Building construction	2.67	1	2.50	2
Road and transport	2.47	2	3.13	1
Credit availability	2.40	3	2.33	3
Poultry market	1.87	4	1.93	4
Collection center	1.67	5	1.27	6
Poultry clinic	1.40	6	1.67	5

4. CONCLUSION

In this study, different capacity of poultry farms in Tulsipur of Dang district were compared in terms of performance including feed consumption, production cost and profitability per bird and egg and ultimately most lucrative farm was determined. Study results indicated that layers had better benefit cost ratio. The benefit cost ratio in terms of layers production in Ashwar (1.61) was found higher than Gahatey Khola (1.59) which signifies good profitability of layers production in both areas. The benefit cost ratio of Ashwar was found higher than Gahatey Khola in terms of broiler production per bird as well as in per Kg body weight i.e. Gahatey Khola (0.96, 0.96) and Ashwar (1.06, 1.07) respectively which depicts good profitability of broiler production in Ashwar area as compared to Gahatey Khola.

Inadequate vaccination and medication and lack of proper sanitation led to more mortality of broilers in Gahatey khola that resulted in less than 1 benefit-cost ratio. Therefore, farmers are suggested to adopt more innovative technological knowledge, through which they would be able to increase the production, gross margin and net returns. This study is quite new in the area so it can be of utmost importance to others researchers, poultry rearing farmers, government and the policy makers. Research and higher education institutions should give due attention to the poultry rearing and quality feed formulation as part of the research development programs with the genetic improvements of local breeds. Lastly, we recommend government and other agencies to provide fruitful training with all essential technological packages to the farmers. Also the government should develop a proper price fixing guideline.

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