

## Constraints Analysis of Poultry Production at Dzongu Area of North Sikkim in India

Research Article

**B.G. Nath<sup>1\*</sup>, P.K. Pathak<sup>1</sup> and A.K. Mohanty<sup>1</sup>**

<sup>1</sup> ICAR Research Complex for NEH Region, Sikkim Centre, Tadong, India

Received on: 12 Aug 2011

Revised on: 21 Oct 2011

Accepted on: 21 Oct 2011

Online Published on: Dec 2012

\*Correspondence E-mail: [drbichitra.nath@gmail.com](mailto:drbichitra.nath@gmail.com)

© 2010 Copyright by Islamic Azad University, Rasht Branch, Rasht, Iran

Online version is available on: [www.ijas.ir](http://www.ijas.ir)

### ABSTRACT

A study was conducted at five villages of Dzongu, North Sikkim in India to identify various constraints faced by the farmers during poultry production. Selection of respondents of poultry farmers was done on the basis of Simple Random Techniques. The data were collected from each respondent through structured questionnaire as well as self observations. The study indicated that the input (82.25%), economical (74.60%), veterinary / health service (73.50%) and market (63.5%) constraints / problems were the most serious constraints as it was ranked 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> respectively. Non availability of day old chicks, lack of feed supply, improper housing facility, high price rate of day old chick, lack of technical knowledge, non-availability of medicines and vaccines, poor government support for credit facility (soft loan) to farmers were the most important constraints perceived by the poultry farmers of Dzongu area. The study also pointed some suggestions for improving the poultry production in Dzongu. Introduction of improved dual purpose birds, providing credit and health care facilities and establishment of market can bring a significant improvement in sustainable poultry production in Dzongu area, North Sikkim.

**KEY WORDS** constraints, improved dual purpose poultry, technical knowledge, tribal farmers, village poultry production.

### INTRODUCTION

Livestock and poultry sector plays a significant role in India's economy. Almost every household keeps poultry, usually nondescript local birds, in the backyards. In Sikkim, more than 70% people are from agricultural background and 80% of these people keep livestock of different species as a supplementary source of income. [Omonona and Oni \(2004\)](#) maintained that poultry was one of the quickest ways for rapid increase in protein supply in the short run.

Poultry production provides income and employment opportunities, particularly for rural women, small and marginal farmers, weaker sections of the community and educated unemployed youth. Sikkim has enhanced the images as major tourist place where thousands of tourists come ev-

ery year. Taking the tourist flow into account, the demand of poultry product in the hotel sector is ever increasing. Though keeping poultry, especially by the rural poor, is a common practice in India, the system of rearing differs, depending upon the prevailing agro ecosystem and the resources available.

The farmers evolve low input production systems based on their traditional knowledge, with locally available resources. The majority of farmers in North Sikkim have been rearing the local, or "desi" birds as backyard poultry which are found to be more adaptive. Experts have identified a lot of constraints in poultry production in this area. These constraints included high mortality rates, predation, high incidence of diseases, inadequate supply of day-old chicks, high cost of feeds, veterinary services, inadequate

finance and lack of market information (McAinsh *et al.* 2004; Okagbare and Akpodiete, 1999; Omonona and Oni, 2004). No study could be found regarding different constraints faced by the tribal farmers in this region of India and hence, present study was carried out to analyze constraints of poultry production in Dzongu, North Sikkim, India.

## MATERIALS AND METHODS

The present study was conducted at Dzongu area, North Sikkim district of Sikkim state located in the North-Eastern part of India over a period of two years (2009-2011). Sikkim, the 22<sup>nd</sup> state of India is situated in the Eastern Himalayas. North Sikkim with a total geographical area of 4226 sq. km is the largest district of Sikkim but the least populated with population of 38352 (as per the 2001 census) which are scattered in an altitude range of 4800 feet to 15000 feet. The Dzongu area of North Sikkim specifically lying between 27°28' to 27°38' North latitude and 88°23' to 88°38' East longitude and is mostly inhabited by tribal people. In summer, the temperature during the daytime ranges from 15 °C to 28 °C, while during the winter the minimum temperature is as low as 2 °C. The rainfall varies from 3000-4000 mm.

The relative humidity is high in monsoon month that is about 90%. The survey was conducted in five villages of Dzongu area of North Sikkim *viz.* Tingvong, Passingdang, Lingdong, Hee-Gyathang and Gor to study the constraints of poultry production. From each village, twenty poultry farmers were selected randomly to make a sample size of 100 respondents. Structured questionnaire were used to source primary information from the farmers and self observation was also employed. The constraints and problem as seeming by respondents were scored on the basis of enormity of the problem. The respondents were recorded and converted into mean per cent score and constraints/problems were ranked consequently as suggested by Warde *et al.* (1991).

## RESULTS AND DISCUSSION

### Age, gender, management system and scale of poultry production in Dzongu

Age, gender of the farmers, management system and the scale of poultry production in Dzongu area are presented in Table 1. From the table, it was observed that 50% of the poultry farmers were old which were followed by middle (30%) and young (20%) farmers. The study showed that majority (78%) of the poultry farmers in Dzongu area were females. The number of females participated in terms of rural poultry production is always higher than males as re-

ported by Nielsen *et al.* (2003), Okitoi *et al.* (2007) and Ogunlade and Adebayo (2009).

**Table 1** The age, gender, management system and scale of production among the poultry farmers in the study area (n=100)

Criterion	Frequency
<b>Age</b>	
young (15-20 years)	20
Middle (21-30 years)	30
Old (above 30 years)	50
Total	100
<b>Gender</b>	
Male	22
Female	78
Total	100
<b>System of management</b>	
Extensive	81
Semi intensive	02
Intensive	17
Total	100
<b>Scale of production</b>	
Large-scale (50 and above birds)	9
Medium-scale (20-50 birds)	73
Small-scale (<20 birds)	18
Total	100

n= total nos of respondent.

Majority (81%) of the farmer rear poultry in extensive systems that are followed by intensive system (17%) and semi-intensive system (2%). The method of classification of scale of poultry production adopted in Table 1 was according to USAID (2006).

Farmers are grouped into three i.e. small scale (ess than 20), medium scale (20-50) and large scale (50 and above). From the study, it was seen that majority (73%) of the farmers operate medium-scale which is followed by small scale and large scale owner with 18% and 9% respectively. The information regarding the productive performance of poultry birds of Dzongu area are given in Table 2. In native birds, the average body weight at 6 weeks, average age at first laying, average egg weight at 40 weeks, average yearly egg production and survivability % (up to 6 weeks) were recorded 240- 400 g, 221 days, 32-40 g, 45-50 nos. and 78 respectively. In case of broiler average body weight at 42 days of age was recorded as 1.75 kg. The responses of the farmers towards health management of poultry are given in Table 3. The study revealed that morbidity and mortality were recorded as 60% and 30% .Most of the farmers did not vaccinate and treated their birds against any disease and no farmer had ever taken dead birds to a veterinarian for post mortem examination which was also reported by Kumaresan *et al.* (2008).

### Constraints reported by the poultry farmers in the study area

Constraints faced by the farmers of Dzongu area during poultry production is presented in Table 4.

**Table 2** Performance of different poultry birds rearing in Dzongu area

Economic trait	Result	
	Local / Desi	Broiler
Body weight at six weeks	240- 400 g	-
Average age at first laying	221 d	-
Average egg weight at 40 weeks	32-40 g	-
Average egg laying (1 yr.)	45-55 nos	-
Survivability, % (up to 6 weeks)	78	-
Average body weight at 42 days of age	-	1.75 kg

### Constraint related to input

Feed resources are a major input in poultry production systems, estimated to account for about 60 percent of total production costs in the commercial poultry sector.

**Table 3** Responses of farmers regarding health management and marketing of poultry

Practice	% of total
Morbidity	60
Mortality	30
<b>Vaccination</b>	
Yes	22
No	78
<b>Treatment of sick birds</b>	
Yes	21
Local treatment	54
Other treatment	46
No	69
<b>Postmortem of dead birds</b>	
Yes	0
No	100
<b>Disposal of dead birds</b>	
Buried	12
Thrown away	69
Eaten	19
<b>Disposal of waste</b>	
FYM	55
Fish feeding	0
Waste not used	45
<b>Marketing birds and eggs</b>	
Local market	71
Other nearby market	22
Other	07
<b>Fair price for birds and eggs?</b>	
Yes	34
No	66

FYM: farmyard manure.

In the study, it was observed that majority of the farmers faced input problem like non-availability of poultry chicks with 91% and 81% had faced lack of supply of poultry feed ranked 1<sup>st</sup> and 2<sup>nd</sup> constraint respectively. The improved

backyard chicken varieties could not sustain only on scavenging. There is a need for the provision of small quantity of balance feed ration for good performance. In present study, the respondents indicated that June to August is the major time of the year during which feed shortage mostly occurs for village poultry as it is not harvesting season of grain or cereal crops affecting village poultry production which is similar with the findings of [Dinka \*et al.\* \(2010\)](#) Majority (80%) of the farmers had only temporary poultry houses made from locally available materials such as bamboo and wood. Poor economic status was cited as the reason for not having a scientific poultry houses and due to which predator menace was higher in that area. Moreover, 77% farmers faced the problem of lack of enough scavenging area which is the main reason behind the poor productive performance of the existing poultry birds.

### Constraint related to veterinary / health services

Controlling the incidence of diseases in the village chicken production system is a challenging task as they are exposed to adverse environmental conditions such as weather changes, poor quality feed, predators etc.

Mortality of day old chicks/young birds, high rate of morbidity, inability to diagnose sick birds were the major constraints related to veterinary/ health services in Dzongu area.

Non-availability of medicines and vaccines at Dzongu resulted in the devastation of the poultry flock by diseases mainly by New Castle disease (Ranikhet disease). Contacts between flocks of different households and the livestock shandies are the important sources of disease transmission. It is therefore, necessary that government and other line department should take necessary steps for regular supply of vaccines, medicines and other health care services so that the minimum required vaccination should be completed before chicks reached 6 weeks of age i.e. in nursery period. The birds under free range condition should be vaccinated against Ranikhet disease with R2B strain at every 6 months interval besides deworming the birds a week before the vaccination.

Provision of night shelter helps in controlling the mortality due to predators. The materials used for night shelter such as wood and bamboo offer a good hiding place for external parasites. This should be checked and monitored regularly to avoid massive build up of external parasites, which will effect growth and production and sometimes causes death as well.

In addition to this, regular health care programme should be conducted in the study area in order to create awareness as well as improve knowledge among farmers about importance of routine vaccination and managerial practices for better poultry production.

**Table 4** Responses to constraints faced by poultry farmers in Dzongu, North Sikkim

Sl. No.	Constraints/Problems	Frequency	Ranks
<b>A. Input</b>			
1	Non-availability of poultry chicks	91	1
2	Lack of poultry feed	81	2
3	Lack of proper housing system	80	3
4	Limited scavenging area	77	4
	Overall	82.25	
<b>B. Veterinary / Health Services</b>			
1	Lack of veterinary facilities (Veterinarians, Medicines, Vaccines)	83	1
2	Mortality of birds	79	2
3	Mortality of day old chicks/young birds	74	4
4	High rate of morbidity of birds	67	5
5	Inability to diagnose sick birds	61	6
6	Disease outbreak (eg. RD, Bird flu)	77	3
	Overall	73.50	
<b>C. Economic</b>			
1	Lack of credit facility	88	1
2	High cost of poultry chicks	80	2
3	High cost of feed	68	4
4	High cost of medicine	71	3
5	High cost of transportation	66	5
	Overall	74.60	
<b>D. Marketing</b>			
1	Lack of market for birds	66	1
2	Lack of market for eggs	61	2
	Overall	63.5	

#### Constraint related to economics

Economic was another important constraints faced by the farmers of Dzongu. Lack of credit facility (88%) and high cost of chicks (80%) ranked as 1<sup>st</sup> and 2<sup>nd</sup> constraint respectively. High feed cost and high medicine cost were the serious constraint faced by the poultry farmers. Government should support the farmers by providing bank loan with low interest so that they can start the poultry business. High transportation cost for marketing of poultry was another important constraint for the poultry farmers in Dzongu area.

#### Market as a constraint for poultry production

Lack of market for birds and eggs, loss of birds and eggs due to predators etc. were the other important constraint for poultry farmers. Due to lack of proper market in local area poultry farmers of the study area could not able to get their actual benefit as one third of their benefit were spent for high transportation cost. It is strongly recommended that the State Govt. should take special attention for establishing suitable market so that farmers get benefitted without extra expenditure for transportation cost.

#### CONCLUSION

The findings of this study indicate that fat source and the degree of saturation of dietary fats does not affect their metabolic use for body weight gain, carcass yield and fat pad deposition.

However, an increase in the saturated fatty acids at expense of the polyunsaturated fatty acids may increase the risk of coronary arterial disease. Therefore, further research is needed to explore the best ratio of unsaturated to saturated fatty acids of solid fats such as T.

#### ACKNOWLEDGEMENT

The authors are grateful to the local people of Dzongu area for their valuable information and to the Department of Animal Husbandry, Govt. of Sikkim for the necessary information during the survey period.

#### REFERENCES

- Dinka H., Chala R., Dawo F., Bekana E. and Leta S. (2010). Major constraints and health management of village poultry production in Rift Valley of Oromia, Ethiopia. *American-Eurasian J. Agric. Environ. Sci.* **9(5)**, 529-533.
- Kumaresan A., Bujarbaruah K.M., Pathak K.A., Chettri B., Ahmed S.K. and Haunshi S. (2008). Analysis of a village chicken production system and performance of improved dual purpose chickens under a sub-tropical hill agro-ecosystem in India. *Trop. Anim. Health. Prod.* **40**, 395-402.
- McAinsh C.V., Kusina J., Madsen J. and Nyoni O. (2004). Traditional chicken production in Zimbabwe. *World's Sci. J.* **60**, 233-246.
- Nielsen H., Roos N. and Thilsted S.H. (2003). The impact of se-

- mi-scavenging poultry production on the consumption of animal source food by women and girls in Bangladesh. *J. Nutr.* **133**, 4027- 4030.
- Ogunlade I. and Adebayo S.A. (2009). Socio-economic status of women in rural poultry production in selected areas of Kwara State, Nigeria. *Int. J. Poult. Sci.* **8**, 55-59.
- Okagbare G.O. and Akpodiete O.J. (1999). The Current status and strategies. Pp. 13-25 in *The Nigerian Livestock Industry*. S.I. Omeje, Ed. Issues in Anim. Sci. Enugu (Nigeria): Raykenedy.
- Okitoi L.O., Ondwasy H.O., Obali M.P. and Murekefu F. (2007). Gender issues in poultry production in rural household of Western Kenya. *Livest. Res. Rural. Dev.* **19(2)** 205-210.
- Omonona B.T. and Oni O.A. (2004). Economics of table egg production in Ibadan Metropolis, Oyo State, Nigeria. *Trop. J. Anim. Sci.* **7(2)**, 67-73.
- United State Agency for International Development, (2006). Birds susceptible to avian influenza. Stakeholders training on handling livestock disease emergencies-avian influenza (bird flu). Workshop organised by the Federal Department of Livestock and Pest Control Services (The Pan African Programme for Control of Epizootics, PACE) in collaboration with USAID, FAO and IFAD. Held at Minna, Niger State, Nigeria. March, 14 -15.
- Warde P.N., Bhople R.S. and Choudhury D.P. (1991). Adoption of dry land horticulture technology. *Maharashtra J. Ext. Educ.* **10(2)**, 108.
-