# Exploration of Problems, Prospects and Marketing Potential of Game Poultry Birds in Nepal

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## ABSTRACT

*This study was conducted from to June/July 2019 to Jan/Feb 2020 in 3 different places viz. Kathmandu, Chitwan and Biratnagar/Jhapa to explore the status of Pigeon, Turkey, Quails and Guinea fowl (Laukat) in the country. Productive, reproductive and commercial value of these game birds were explored. The method included survey, review of secondary data, interview, observation and focus group discussion (FGD). The questionnaire included both open and closed ended questions.Results showedthat Turkey, Laukat, Quail and Phesant are being introduced recently. A lot of farmers are rearing or planning to rear these species with limited knowledge. The Kadaknathchicken was found to fetch good price (Nrs 4000-5000/bird) in the market. Similarly, the market value of Laukat ranged from Nrs 1200-1500 and the body weight of those birds ranged from 1200-1500 gm. The body weight of the phesants ranged from 850-900 gm. Ducks were found to be raised together with fish. The common constraint of farming was biosecurity management. In summary, if stakeholders in the value chains succeed to reduce the incidences of disease and ensure the supply of quality poultry and poultry products at reasonable price, the demand will significantly increase in the days to come.*

***Keywords:*** *Alternate poultry meat; Commercial value; Game birds, Survey*

## INTRODUCTION

In last two decade, poultry sector have been booming up and is progressing towards industrialization. The major reasons for this boom might be related to the increasing human population, greater purchasing power and urbanization. Additionally, the development and transfer of feed, slaughter and processing technologies have increased safety and efficiency of poultry production. These developments have driven the poultry industry and the associated feed industry to scale up rapidly, to concentrate themselves close to input sources or final markets, and to integrate vertically. Nepal ranks 112th in chicken meat production, 92$^{nd}$ in egg production and the GDP contribution by poultry sector 4 %. Farmer's, middle man, wholesale, retailers and consumers are the key players for value chain in poultry production system of the country (FAO, 2012). The primary role of the farmer is to supply cheap and safe food to populations. However, the different studies have indicated that the demand for poultry and its products chicks in Nepal is not met by the internal supply. There is no or limited export.

The game birds are type of birds that is hunted in the wild for sport and/or food. Quail, turkey, Kadaknath poultry, pheasant, pigeon and guinea fowl are newly emerging game birds in the country. According to Yakubu et al (2013), game birds production is an important and highly profitable agricultural industry with a rising global demand for its products as they are adaptable to wide range of climatic conditions (Ogundipe and Dafwang, 1980). Karki (2005) stated that consumption of turkeys and broilers as white meat have been rising worldwide. The consumption of broilers and commercial layers are increasing however, there is also a shifting trend towards relatively new poultry birds in Nepal such as Turkey, Laukat, Quails Phesants, Pigeons etc. and are providing alternative source of poultry meat. The recent trend indicates their potential to flourish in the Nepalese market. The popularity of these birds are increasing due to advertisements and publicity on gamey flavor of meat with lower fat content. Furthermore, rearing of these birds require few inputs (purchase of initial stock, sheds etc.) and are right sized for home consumption. It allows opportunities to utilise family labour force including older people, women and children. In addition to these, there is alarming issue of haphazard uses of antibiotic in commercial poultry birds which can be a potential threat to human health. Alternative birds as can be complement other commercial poultry birds. However, the situation of these gamebirds farming in the country is not well known. Therefore the study was conducted with the objective to explore problems, prospects and marketing potential of game poultry birds in Nepal**.**

## MATERIALS AND METHODS

### Research sites and farmer's selection

A study was conductedfrom June/July 2019 to Jan/Feb2020in 3 different places viz. Kathmandu, Chitwan and Biratnagar/Jhapa. The methods used included survey, review of secondary data, interview, observation and focus group discussion (FGD).The questionnaire included both open and closed ended questions. The questions included information about rates of fertility and hatchability, egg production, body weight and market rates. A total of 10 farmers from each sites were selected to collect the information. The farmers were selected from game bird producing groups of the research sites. The selected study sites included experienced game bird producers like pigeon, turkey, quails and guinea fowl (Laukat). Both primary and secondary sources of data were used for the study. Primary data revealed the outcomes from questionnaire and the secondary data were retrieved from the literature review.

### Analysis of data

The data collected on different parameters were analyzed `using the Microsoft Excel.

## RESULTS AND DISCUSSION

### Game poultry birds in Nepali context

In recent days in the country, there is shifting trend towards alternatives. In order to maximize food production and meet protein requirements in the country, variable options need to be explored. Turkey, Laukat, Quail and Phesant etc. are the best options for alternative protein source. Additionally, these birds are being introduced recently and there are various sectors of them to

be explored in the country. A lot of farmers are rearing these or planning to rear these birds with a limited extent and experience without having prior experience.

Few pioneer farmer of turkey reared around 500 turkey birds in the eastern region. Despite, there was little practice of farming and marketing of game birds. The turkey meat was sold in few Department store and butcher shop @ Nrs.1000-1200/ kg. Despite few people used to buy whole turkey @ Nrs 4000-6000. However, sale of turkey meat increased slight during Christimas, thanks giving day and newyear. However, the region had encouraging number of pigeons. The practice of raising pigeons in the rural part of the eastern region was since long time with no commercialization. Many people of these areas consumed the young ones of pigeon as medicinal value and they even sacrificed these to God. In some instances the young ones of pigeon were available in some major rural agro-market commonly known as "hatiyas". The "Sombari Hatia", "Sani Hatia", Budhabari Hatia and Sonbarsha Hatia were some major marketing place for pigeons. The local vendors used to sell these in Nrs. 250-300 per pair. Sometimes there was slight increase in price in special occasions like Navaratri and other festivals. Little information could be collected regarding reproductive and productive traits. The breeds were identified as none descript ones. The size of eggs varied from 10-20 gms and total production of eggs varied from 40-50 as per questionnaire survey.

Similarly , Madi Krishi farm, Chitwan, Namuna Krishi farm , Bhaktapur , Siddhi Ganesh Hatchery, Sarlahi and Ali Poultry farm, Siraha were identified as pioneer farms of "Laukat " in the country. Some detail description about these game birds have been given as under.

**Kadaknath**

Kadaknath chicken breed is famous for its meat quality, texture and taste (Parmar et al., 2007). The demand for Kadaknath chicken is growing day by day and spread across most of the Indian states due to their excellent medicinal values. Especially these birds bear great medicinal value in homeopathy and useful in treating a particular nervous disorder (Belsare and Narayankhedkar, 2004).The Kadaknath chicken eggs are also have good nutrition values and good for old people. The black meat contains vitamins B1, B2, B6, B12, C and E, niacin, protein, fat, calcium, phosphorus, iron, and nicotinic acid the breed is hardy and highly resistant for diseases (Belsare and Narayankhedkar, 2004). Additionally, a lot of advertisements and publicity are being made on gamey flavor of meat with lower fat content The size of the bird ranged 1.8-2 kgs and 1.5-1.8 kgs. No information could be explored regarding egg production Due to the relatively high consumption of the breed, its numbers have sharply declined. To save the breed from extinction, Because of the limited availability and increased popularity of the breed since the mid-2000s, there have been multiple types of scams in which both poultry farmers and consumers have been swindled (Parmar et al., 2007). Similarly, the meat of Kadaknath revealed the bird fetched good price (Nrs 4000-5000/bird) in the market.

**Laukat (Guinea Fowl)**

Guinea fowl (Laukat) are birds of the family Numididae within the Galliformes. These large birds measure from 40–71 cm (16–28 inches) long, and weigh 700–1600 grams or 1.5-3.5 pounds (Christopher, 2005) resembled the study. Consistent with the survey, the market value of Laukat ranged from Nrs 1200-1500. The body wt. of those birds ranged from 1200-1500 gm. The weight of male and female were almost similar with a variation of 50-100 gm. The egg production of those birds ranged from 50-60 gm. The breeds were identified was non- descript ones. However, The Laukat was known to measure in flocks with very less feed consumption around 50-60 gm/ birds with good FCR. Most of the Guinea fowl were raised on fodder basis. Berseem, Lucern and Oat were commonly used forage grasses. The birds were identified as hardy ones and thanks to these desirable trait, the birds were becoming more popular in Nepalese market. Additionally, the vendors and sellers of guinea claimed that the taste of those resembled of Pheasant. There are increasing demand thanks to limited availability and increased popularity of the breed. Especially, the rising agro-tourist the interest of the many farmers are directing interest.

**Pheasants (Kalij)**

The survey on pheasants revealed the itsfarming is newly emerging business in the country. Some pioneer farmers of Pokhara, Chalnakhel and Balkhu brought the eggs of these from Belgium and France. Some information regarding productive and reproductive parameters were collected. According to the survey, the body weigt of these phesants ranged from 850-900gms.They produced 60 eggs per annum. Some special net housing system and wild foraging system was followed. However, the birds fetched high market price. According to the farmers, the price of per bird was Nrs. 5000. Additionally, some tourist resort from Tistung and Palung and other various places were selling the Pheasant meat.

**Pigeons**

The practice of raising pigeons within the rural a part of the eastern region was since while, however with no commercialization. Those areas consumed the young ones of pigeon as medicinal value and that they even sacrificed these to God. However, the young ones of pigeon were available in some major rural agro-market commonly referred to as “hatiyas”. In accordance with the census report published by CBS Nepal in 2001/2002 Nepal had a population of 1.8 million pigeons constituting but 1 percent (0.1) of the entire number of birds in Nepal. No

commercial farming of pigeons has been recorded. They will be spotted in sizable amount in several temples and holy sites throughout the country offered as a spiritual sacrifice by pilgrims. they're primarily reared for this purpose, though consumption of pigeons are often found consistent with a study entitled "Integrated characterization of 4 cross-border areas of Nepal within the border with India for the danger assessment of HPAI: a socio-economic perspective" conducted by the Society for Management and Development (FAO, 2010) approximately 10-12 percent of the households within the study districts (Jhapa, Parsa, Rupandehi and Banke) were found to stay pigeons

**Ducks**

The duck population is scattered throughout the country and generally raised in traditional farming systems alongside local chickens. The ducks are often raised around water sources and are more common in certain ethnic communities like Tharu, Newar and Rajbansi Ducks are kept in a traditional scavenging system and no commercial farming of ducks exists at present. Duck keeping practices can be categorized in two ways on the basis of the presence or absence of large water bodies. The ducks are raised together with indigenous fowls and livestock in the Terai districts, primarily in eastern Terai. Unlike in other countries, duck raising practices associated with rice paddy fields is not important in Nepal. The prime purpose of duck farming is for domestic consumption of meat and eggs along with its contribution to generating emergency cash to fulfill household requirement. Rural people have been encouraged to take up duck-raising as a source of additional protein and income and, in the case of fish farmers, in helping to produce more fish, through the nutrient supply from duck manure to the fish ponds. Ducks are also reared for religious and cultural significance. Every Tharu, member of an indigenous caste, rears ducks as it is necessary to offer ducks and duck eggs to gods. Ducks are used for cultural ceremonies. In the Jhapa district, the Rajbansi an indigenous community imports a large number of ducks from India during their "Siruwa" festival. It is reported that during important festivals like Dashain and Saun Sankranti, the Newar and Tharu communities consume a large number of duck eggs and use ducks as religious offerings, furthering illegal imports in the country

**Quail and Turkey**

There are dozens of varieties of quail, one of the most populous game birds, throughout the world. Quail are commonly hunted but are also commonly farmed. Farmed quail and quail eggs are available in many markets, butchers, and specialty food stores. Like all game birds, quail need to be cooked quickly and is well suited for grilling or roasting

with an addition of fat to avoid drying out. Small and plump, quail have a very mild gamey flavor. Now-a-days a lot of people have been rearing quail in their roof tops for their own consumption. Additionally, it was observed that the sales of quail eggs boom-up during the winter season. The survey on turkey revealed that meat were sold in few Department store and butcher shop at the rate of Nrs.1000-1200/ kg. Despite few people used to buy whole turkey at the rate of Nrs 4000-6000. However, sale of turkey meat increased slight during Christmas, Thanks giving day and New Year. The turkey farming is gaining popularity throughout the country.

**Production system**

The information about usage of production system and feed ingredients was challenging. Three types of production system was observed as per Dhaubhadel, (1992) who stated that the paucity of available data complicates classification of Nepal's poultry production systems following the FAO classification relating to bio-security levels and in Nepal classification is usually more related to farm size and is grouped into the following categories. i) Scavenging system ii) Semi-scavenging iii) Intensive 3.2 Industrial and integrated.

Scavenging system comprised few birds (3-10 adults per flock) under the giving the farmers extra income in the form of meat and egg sales and partly serves for their own domestic consumption. Around 30% percent of the total poultry populations including ducks were kept under this system. Similarly, local chickens and Kadaknath were the predominant species under this system. The chickens were kept with a low level of inputs, housing, and feeding, and disease control. Most of the farmers raised these game birds in semi-intensive system. The different grasses and commercial feed commonly used included Comfrey, Oat, White clover, commercial layer feed L1 and poultry L3 feed. The commercial feed, water and seasonal grasses were offered ad lib to almost all these different types of bird.

**Semi-scavenging system**

Some households with flock sizes of above 20 birds have built separate housing facilities. Moreover, some households are self-reliant in producing day old chicks through broody hens. Around 60% of the total poultry population including ducks was kept under this system. Similarly, local chickens and Kadaknath were the predominant species under this system. The poultry birds were kept with a low level of inputs, housing, and feeding, and disease control.

**Intensive system**

Quails and Pheasants were seen to be reared in this system. Some households with flock sizes of above 100 birds have built separate housing facilities even with cage facilities.

**Marketing Channels**

A field survey was conducted by the author to assess the causes of dropping out of poultry business in the four major poultry pocket districts, Kathmandu, Kaski, Chitwan and Biratnagar of the country. This was done via developing questionnaire and a total of 50 persons, ten persons from each district, were interviewed. The study concluded that the high mortality and high input prices were the major constraits of out of the poultry business. The general marketing channels of these game birds was also explored and have been given by the table below.

Table 1. Marketing channels for game birds in Nepal

| | | | | |
|---|---|---|---|---|
| Farm → | Consumers | | | |
| Farm → | Slaughterers → | Consumers | | |
| Farm → | Wholesale → | Slaughterers → | Consumer | |
| Farm → | Middleman → | Wholesale → | Slaughterers → | Consumer |

In addition, an inventory of the Haat bazaars found that 85 operate at regular intervals in the eastern Terai, 34 in mid-Terai , 7 in western Terai, 5 in far-western Terai and 23 in the hill regions (FAO 2012/13). Most of those Haat bazaars are focused on the transactions of livestock including cows, oxen, male and female buffaloes, and male and female goats. Poultry trade either in small or big numbers also happens at those places. Haat-bazaars happen once or twice per week involving the transaction of hundred rupees to millions. The Jhapa districts has the largest number of haats (36) followed by the Morang (12), Sunsari (12), Saptari (10) and Siraha (8) districts. These Haat-bazaars are either owned or managed by local authorities (VDC/municipality) or private organizations. They have contributed to generating significant revenues, but only a small portion of the income is utilized for maintenance, infrastructure development and management improvement.

Similarly, the poultry value chain study sheds some light on the live bird markets in four Terai districts of Nepal. It mentions 30 permanent live birds markets with heavy concentration of wholesalers (25 trading commercial chickens and 5 village chickens) and slaughterers (more than 200) inJ hapa district. LBMs are located in Birtamod, Chandragadhi/Bhadrapur, Damak/Dhulabari, Surunga, Gauradaha, Budhabare, Kerkha, Charali, Sanischare, Garamuni, Rajghat, Maheshpur and Prithvinagara. Most of these points are collection points of both formal and informal (illegal) trade catering the neighboring and distant districts as well.

Parsa district has a total of 6 such live bird markets namely Birta, Murli, Chhapkaiya, Gandak, Naguwa and Meena Bazaar serving as well as wet markets and are situated in Birgunj Municipality. On an average, 10-40 live birds are sold from each market place either directly to the consumers or through slaughterers to consumers. The varieties of birds sold live include Kuroilers, Lohatans and village chickens. Informal birds imported from India contribute with almost 60 percent to the total broiler trade from these markets.

In addition to these, some constraints for game birds production were identified as well. Some major constraints have been illustrated as under.

- Illegal import of day old chicks
- Problems with consistent availability of quality and disease free chicks
- Lack of quality feed and lack of continuous monitoring feed ingredients
- Lack of awareness and training about poultry farming and bio-security related practices with ample amount of ignorance.
- Vaccination not effective due to poor quality and storage facility

- High mortality and high input prices were the major causes of dropping out of the poultry business
- Birds were either killed or slaughtered in the market or they may be brought home by the buyer to be slaughtered at home. There is no disposal mechanism for waste material in any of the locations, thus causing serious health hazards

Table 2. Farmer's response to questionnaire survey

| S.N. | Response (Agreement) on particular Issue | Percentage |
|---|---|---|
| 1 | Input price of production is higher than output price | 60% |
| 2 | Day old chicks related problems | 50% |
| 3 | Price was high for day old chick | 70% |
| 4 | Timely chick supply was not available | 70% |
| 5 | Shortage of capital | 50% |
| 6 | Adequate quantity of chick was not available | 65% |
| 7 | High mortality of birds | 80% |
| 8 | Low productivity of birds | 50% |
| 9 | Low demand of products in local market | 60% |
| 10 | Difficult to sell in distant markets | 70% |
| 11 | Shortage of labour | 60% |
| 12 | Poor quality feed /needs home-made formulation | 70% |

**Biosecurity Management**

Biosecurity management in all the farms were very poor. Unsatisfactory disposal of unhatched eggs, dead chicks and chickens in two of the three visited hatcheries. Rodent proof construction only in one of the few farms, however all have a strong fence or wall around their premises to prevent village chickens, ducks, dogs and cats from entering.
The strength and weakness of game bird farming have been given as under.

**Strength**

- Increasing trend in production and productivity heading towards self-sufficiency in the country.
- Increasing tendency of consumer favoring white meat;
- Popularity of poultry meat without regard to caste/creed/age.
- one of the cheapest source of animal protein but very low consumption compared to buffalo meat;
- Availability of meat and eggs in all urban centers and even in small market areas
- Quarantine act, meat act for quality control Organized private sector and good coordination between government stakeholders in opening slaughterhouse in near future;
- Rapid financial turnover;
- Increasing inflow of tourists, rapid urbanization, and changing food habits of urban inhabitants; and

- Availability of comparatively cheaper labor.

**Weakness**

- Irregular supply of quality chicks at competitive price;
- Lack of updated database regarding demand and supply statistics, manufacturer information, product pricing, feed, medication and veterinarians;
- Weak knowledge of poultry farmers about maintaining bio-security, production and marketing;
- Lack of adequate knowledge about quality standard of feed, medicine, day old chicks and vaccines;
- Improper handling of poultry products, medicines and vaccines;
- Not competitive in terms of pricing and quality standards to control informal imports;
- Several incidence of informal imports with possibility of immediate disease transmission threatening public health;
- Quality standard not fully adopted in all steps of production and distribution;
- Lack of slaughterhouses and processing companies delivering safe and hygienic poultry products;
- Lack of introducing new policies and adapting old through comprehensive guidelines and gap in effective implementation and enforcement;
- Weak enforcement of existing rules, regulation and guidelines ;
- Lack of grandparent stock farm in Nepal limiting the prospects to some degree in decreasing cost of chickens entire the value chain;
- Porous border, inadequate quarantine check post with minimal institutional arrangements to control informal imports;
- Weak association of poultry farmers across the value or supply chain;
- Maintenance of bio-security throughout the supply chain;
- Lack of regular sero-monitoring, disease diagnosis and prevention mechanisms.

## CONCLUSION

In summary, gamebirds are increasingly getting popular in Nepal and are contributing as an alternate protein source to the people. However, there are several challenges such as disease problems owing to the poor biosecurity measures in the farm. If stakeholders in the value chains succeed to reduce the effects of disease and ensure the supply of quality poultry and poultry products at reasonable price, the demand will significantly increase in the days to come. Economic growth and rapid urbanization will also fuel the increase in the demand.

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