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## A study on poultry production practices at various farms in Varanasi

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### Abstract

The study entitled “a study on poultry production practices at various farms in Varanasi” was conducted to determine the managerial practices, profitability and income utilization done by farmers under various system of poultry production. Five villages were selected purposively having presence of good number of poultry farmers. Data were collected from the 20 respondent with the help of structured interview technique. The study area was dominated by the male farmers belonging to middle age group followed by young. Education statuses of most of the respondents were high and 10+2. In both the systems of poultry farming (organized & backyard), majority of the respondents had animal husbandry (including poultry) and agriculture as the main occupation. In organized system were practicing semi intensive and intensive systems of poultry farming, whereas in unorganized system all respondent were practicing extensive system of poultry production in all the five villages. Under organised system all the respondents were rearing broiler and they provide separate houses. In back yard poultry rearing system the chickens are fed with kitchen waste and grain, they receive no medication while in organized system company feed and homemade feed were used and they receive medication. Majority of poultry owners rearing birds in unorganised system made necessary arrangements for night shelters of the bird to protect them from predators. Majority of respondents of the organized system reported that Coccidiosis and IBD are major disease affecting production while in unorganised system respiratory problems, Fowl pox, Coccidiosis, IBD and Ranikhet diseases were reported which affects production.

**Keywords:** Backyards, organized, management, poultry, production, unorganized

### 1. Introduction

Poultry has a crucial place in India as the eggs and chicken meat are important and rich sources of protein, vitamins and minerals. Poultry sector is an important source of income and employment to millions of farmers and other persons engaged in allied activities in the poultry industry. Chicken is the most widely accepted meat in India. Unlike beef or pork, it does not have a religious taboo. The prices of chicken meat are lower than those of mutton or goat meat. Many Indian families, especially the educated people in urban areas, have begun to accept eggs as a regular supplemental part of their vegetarian diet. In the last three to four decades, poultry has made tremendous strides particularly in the private sector, with the result that India is now self-sufficient with regard to requirements of high quality breeding stocks, modern poultry equipment, availability of medicines and vaccines and technically qualified skilled manpower.

### Poultry production in India: Present scenario

Poultry egg and meat, in recent years have become important and popular food for the 68.00 per cent of the non- vegetarian population of the country. Increase in consumption has resulted in increased demand and consequently production. Poultry production at present is the fastest growing sub-sector of Indian agriculture with a quantum jump both in respect of poultry production and productivity.

Within a span of 25 years, the egg production has gone up to 70 billion from few millions and the broiler production has gone to 3.8 million tonne from nowhere. Poultry is the most organized sector in animal agriculture, worth rupees one lakh crores. The growth is 6-8 per cent in layers and 10-12 per cent in broilers per year against the growth of agriculture as a whole which is around 2.5%. India is the third-largest egg producer after China and USA and the fourth-largest chicken producer after China, Brazil and USA.

### Status of poultry farming in Varanasi District of Uttar Pradesh

Cows, Buffaloes, Sheep, Goats and Poultry (Backyard) are major component of animal husbandry sector in Varanasi district. The number of backyard poultry birds which constitutes the unorganized sector in district Varanasi is 312523 and 107151 is the number of farm birds in the district (CDAP, 2016). This clearly indicates that the proportion of unorganized poultry is more than that of organized one. Government of Uttar Pradesh has successfully launched its Poultry Development Policy which has been a hit among the poultry farmers. The policy has developed around 300 new layer and broiler farms of 30,000 and 10,000 birds each respectively. Under the scheme, the government was providing interest on the loan amount for establishing 10,000 layers and 30,000 broiler farm units.

7<sup>th</sup> POULTRY FEST 2018 is an International Exhibition on Poultry and Livestock Sectors. This Exhibition is a platform to bring together all the stakeholders of the Poultry industry. The companies engaged in Poultry Farming & Processing, Egg Grading and Processing Equipments Manufacturing, Poultry Feed Manufacturing, Poultry Feeding and Drinking Equipments Manufacturing, Conveying systems & Automated Plant Manufacturing, Poultry Drugs & Health Equipment Manufacturing, Poultry Hygiene, Sanitation, Waste and Odor Management Equipments Manufacturing, Cold Chain Technology, Live Birds & Meat Processing & Other Livestock Farming etc. can showcase their strength, products & services to the participants of this unique Poultry Expo. It is the best platform to reach the fastest growing poultry market in India. Considering the importance of poultry farming in Uttar Pradesh state in general and Varanasi district in particular the study entitled “Study on poultry production

practices in Varanasi district of Uttar Pradesh” had been undertaken with the following objectives:

#### Objectives

Study of managerial practices in different systems of poultry production.

#### 2. Research methodology

The methodology describes the detail of the material and method persuade in the course of investigation under the following heads.

##### 2.1 Locale of the study

##### 2.2 Sampling plan

##### 2.3 Variables and their measurement

##### 2.4 Gross annual income from poultry

##### 2.5 Data collection

##### 2.6 Statistical tool used for analysis of data

#### 2.1 Locale of the study

The present study entitled “A study on poultry production practices at various farms in Varanasi” has been carried out in the department of Animal Husbandry & Dairying, Institute of Agricultural Sciences, Banaras Hindu University, and Varanasi (UP).

#### 2.2 Sampling plan

Purposively both commercial and backyard type of the poultry farmers were selected for the study in the selected area near of the district. Multistage random sampling was adopted for the research purpose.

#### 2.3 Variable and their management

	Managerial practices	(for both organized and un organized)	Interview Schedule was developed
1.	Rearing systems		
2.	Night shelter		
3.	Types of houses		
4.	Litter material provided		
5.	Space provided per bird		
6.	Height of poultry farms from ground level		
7.	Arrangement made for chicks and birds		
8.	Artificial light provided to birds		
9.	Arrangement in poultry farms at required interval		
10.	Feeding and watering material		
11.	Feeding management		
	(a) Frequency of feeding		
	(b) Quantity of feed/bird/day		
	(c) Feed supplement		
12.	Source of drinking water		
13.	Time of feeding		
14.	Source of chicks		
15.	Source of fertile hatching eggs		
16.	Hatchability of the eggs in backyard system		
17.	Health management		
	(a) Treatment of birds		
	(b) Medicine used		
	(c) Vaccination		
	(d) Types of vaccination		
	(e) Source of Vaccine		
	(f) Cause of mortality of birds		
	(g) Disease encountered		

### 2.4. Gross annual income from poultry

The annual poultry income was divided into four income groups as given below:

Income group	Income per annum (Rs)
Very low	<12000
Low	12000-42000
Medium	42000-62000
High	>62000

### 2.5 Data collection

Information from secondary sources and observation through departmental documents, records, reports and other sources were collected. The secondary data were also collected from the KVK and Animal Husbandry Department of Banaras Hindu University Varanasi.

### 2.6. Statistical tool used for analysis of the data

The following statistical methods were used to analyses the data and come to conclusion with the help of S.P.S.S. (16.0).

#### Frequency

The term 'frequency (n)' is used to denote how frequently a response appears in a class or category.

#### Percentage

The term 'percentage (%)' is used to denote the actual share of particular response in respect of total considered as hundred.

#### Mean

The mean was computed by the following formula.

$$X = \frac{\sum x}{N}$$

Where,

X = Mean of the scores

$\sum x$  = Sum of individual; scores

N = Number of observation

#### Standard deviation

The standard deviation was computed by the following formula.

$$\sigma = \sqrt{\frac{\sum (X-x)^2}{N}}$$

Where,

$\sigma$  = Standard deviation

X-x = Deviation of the individual values from the population mean

N = Total number of observation

### 3. Result and discussion

The result obtained from the analysis of data collected from the respondents at their farm or homes have been presented under the following heads:

#### 3.1. Rearing system

**Table 1:** Classification of the respondents according to rearing system in farms

Rearing system	Organized (n=10)	Backyard (n=10)
Extensive	0	10(100)
Intensive	3(30)	0
Semi intensive	7(70)	0

Present study shows that respondents in organized system were practicing semi intensive and intensive system of poultry farming, whereas in backyard system all respondent were practicing extensive system of poultry production in these areas.

#### 3.2. Night shelter

**Table 2:** Classification of the respondents according to night shelter in farms

Night shelters	Organized (n=10)	Backyard (n=10)
Separate house	10(100)	0
Shared own house	0	2(20)
Any other	0	8(80)

Under organized system all the respondents were rearing broiler and they provide separate houses. Majority of poultry owners rearing birds in unorganized system made necessary arrangements for night shelters of the bird to protect them from predators. It can be seen that majority (75%) of poultry owner in unorganized system had different shelter for night enclosure under the same roof whereas only 8.3 per cent share the same room with the family.

#### 3.3 Type of house in Backyard system

**Table 3:** Classification of the respondents according to type of houses in farms

Types of house	Backyard (n=10)
Kacha house	70
Wooden house	21.67
Chapper house	8.33

The present study shows that majority of poultry owners in unorganized system (70%) kept the birds in kaccha house prepared by locally available material like mud broken bricks, tiles, wire net where as 21.67% and 8.33% respondents kept their birds in wooden and chapper house respectively, whereas in organized system poultry rearing majority of respondents (95%) use deep litter system of poultry house.

#### 3.4 Litter material provided

**Table 4:** Classification of the respondents according to type of litter material used in farms

S.No.	Litter materials/ bedding material	Organized (n=10)	Backyard (n=10)
1.	Saw dust	9(90)	0
2.	Groundnut shells	0	0
3.	Paddy husk	0	2(20)
4.	Rice husk	1(10)	0
5.	Gunny bags	0	5(50)
6.	Straw+dry leaves	0	3(30)

The present study reveals that in organized system all the respondent provided litter material whereas none of the respondents in unorganized system of poultry production provided litter material but they were providing torn and used gunny bags 70 per cent and rest 30 per cent used combination of straw and dry leaves as the bedding material. In case of organized system of poultry production different types of litter material were used. Among them 90% use saw dust and 10% rice husk as the as the litter material.

#### 3.5 Space provided

**Table 5:** Space provided per bird in farms

S.No.	Types	Space provided per bird
1.	Chicks	0.5 square feet
2.	Broiler	0.8-1.2 square feet

All the respondent of organized system was providing upto 0.5 sq. ft. space per chick. In case of broiler birds the grower were provided 0.8 to 1.2 sq.ft. Space. In unorganized system, the birds receive housing only in the form of night shelter and they are allowed to scavenge by themselves in the surrounding during the day time. The space provided by the poultry owners according to the flock size and sometime houses were made in different tier. Plastic or earthen feederers and waterers are provided by majority of respondents. Majority (90%) of the respondents in organized system had the poultry house, 1 to 2 feet and 2 to 3 feet from the ground level whereas in unorganized system poultry houses were made at different height from the ground level.

**3.6 Height of poultry farms from ground level**

Table 4.2.6 reveal that the majority (90%) respondents in organized system had the poultry house 1 to 2 feet and rests 10 per cent have 2 to 3 feet from the ground level whereas in backyard system poultry houses were made at different height from the ground level.

**Table 6:** Classification according to height of poultry farms from ground level

Height from ground level	Organized (n=10)
1-2 feet	90
2-3 feet	10

**3.7 Arrangement made for chicks and birds**

On perusal of table 3.7 it was found that cent per cent of the poultry farmers in the organized system had electricity connection in their poultry farms. For brooding purpose all the respondents had electric hover and *bukhari* (locally made heating system based on coal/wood). About 90 per cent poultry farmers had made optimum temperature for their chicks and birds. All the poultry farms had chick guard. 70 per cent poultry farmers had optimum and adequate equipments at their poultry farms. 80 per cent farms were located at less crowded place whereas also 80 per cent farms were well connected to the road.

**Table 7:** Classification of the respondents according to arrangement made for chicks and birds

Arrangement	Organized (n=10)
Electricity supply	10(100)
Chick guard	10(100)
Hover (Electric) + Bukhari	10(100)
Optimum and adequate equipment	7(70)
Optimum temperature	9(90)
Road connection	8(80)
Less crowded place	8(80)

**3.8 Artificial light provided to birds**

The present study reveals that in organized system majority (80%) respondents gave 6 hr artificial light and 20% respondents provide more than 6 hrs of artificial light.

**Table 8:** Classification of the respondents according to artificial light provided to bird

Duration	Organized (n=10)
6 hrs	8(80)
More than 6 hrs	2(20)

**3.9 Arrangement in poultry farms at required interval**

All the respondents in the organized system changed litter,

clean and disinfect the equipments at the certain interval. All respondents done room disinfection and white wash after some time interval respectively (Table No 3.9)

**Table 9:** Classification of the respondents according to arrangement in poultry farms at required interval

S.No.	Variable	Yes	No
1.	Litter changed	10(100)	0
2.	Poultry house disinfected	10(100)	0
3.	Cleaning and disinfection of poultry equipment	10(100)	0
4.	White wash inside poultry	10(100)	0

**3.10 Feeding and watering material**

**Table 10:** Classification of the respondent according to feeding and watering materials used

Material	Organized (n=10)
<b>Feeder</b>	
Plastic	10(100)
Metallic	0
Earthen pots	0
<b>Waterer</b>	
Plastic	10(100)
Metallic	0
Earthen pots	0

In backyard poultry rearing, the practice prevalent in the rural area was of leaving the bird for scavenging in the morning and also giving hand full of grains. The feeding practices were very causal. The birds generally scavenged on locally available birds and seeds but in organized system of poultry rearing the birds are provided with regular feeds in their house.

**3.11 Feeding management**

**(a) Frequency of feeding**

Table 3.11(a) shows that a mixed type frequency of feeding pattern was observed in organized system of the study area.

**Table 11(a):** Classification of the respondents according to frequency of providing feed

Frequency of feeding	Organized (n=10)
Twice	6(60)
3-4 time	4(40)
Total	100

**(b) Quantity of feed /bird/day**

All the respondent of the organized system feed their birds according to their market age. In backyard system the birds generally fed ad-lib from scavenging.

**Table 11(b):** Classification of the respondents according to quantity of feed (per bird/day)

Quantity (grams)	Organized (n=10)	Backyard (n=10)
70 to 90	2(20)	0
90 to 110	5(50)	0
110 to 130	3(30)	0
Ad-lib	0	10(100)

**(C) Feed supplement**

All of the respondents of organized system provide feed supplements whereas under backyard system the birds were released in the morning for scavenging and given a hand full of grains during the day time.

### 3.12 Source of drinking water

Table 3.12 reveals that 91.7 per cent respondents of organized system used water from tap water and only 8.30 per cent respondents used from natural sources such as spring waters (Chashme Wahae).

**Table 12:** Classification of the respondents according to sources of drinking water used in farms

Source of drinking water	Organized (n=10)
Natural source	1(10)
Tap water	9(90)
Stagnant water	0
Open drain	0

### 3.13 Time of feeding

Study shows that majority (80%) of respondents in unorganized system poultry farmers offer supplementary feeds in the evening followed by (5%) and (15%) respondents offer in the evening and afternoon respectively.

**Table 13:** Classification of the respondents according to time of feeding

Time of feeding	Backyard (n=10)
Morning	0.5(5)
Afternoon	1.5(15)
Evening	8(80)
Night	0
Total	10(100)

### 3.14 Source of chick

Study shows that 60 and 40% respondents of organized system purchased their chick from govt. and local input dealer respectively. About 90 per cent backyard poultry farmers used natural hatching at home and equal percentage of 5 per cent respondents purchased the chicks from either from feriwala or local input dealer.

**Table 14:** Classification of the respondents according to source of chick

Source of chicks	Organized (n=10)	Backyard (n=10)
Govt. hatchery units	6(60)	0
Local input dealer	4(40)	0.5(5)
Hatching at home	0	9(90)
Feriwala	0	0.5(5)

### 3.15 Source of fertile hatching eggs

In present study it was found that 95% of the respondents in backyard system either hatched eggs from their own birds and rest 5 per cent took them from other backyards poultry farmers (neighbors).

**Table 15:** Classification of the respondents according to source of fertile hatching eggs

Source	Backyard (n=10)
Own birds	9.5(95)
Other poultry owners (neighbors).	0.5(5)

### 3.16 Hatchability of the eggs in backyard system

It can be observed from table that majority (75%) respondents of backyard system reported that the hatchability between (70 to 80%) whereas 10% and 15% respondent claim less than 65 per cent and more than 80 per cent hatchability respectively.

**Table 16:** Classification of the respondents according to hatchability of the eggs in backyard system

Hatchability of egg	Backyard (n=10)
50-70	1(10)
70-80	7.5(75)
80-90	1.5(15)

### 4.17 Health management

#### (a) Treatment of birds

Result shows that majority 66 per cent of respondents treat the birds by veterinary doctors. About 23 per cent treated the birds by paravets local and 11 per cent respondents treated the birds by local experts/Hakeem. In backyard system major 40 per cent of respondents treated the birds by self-treatment followed by paravets (27%), local experts/ Hakeem (15%) and veterinary doctor (3%). About 7 per cent respondents in unorganized system did not treat their birds.

**Table 17(a):** Classification of the respondents according to treatment of birds

Treatment of birds	Organized (n=10)	Backyard (n=10)
Veterinary doctors	6.6(66)	0.3(3)
Paravets	2.3(23)	2.7(27)
Local experts/ Hakeem	1.1(11)	1.5(15)
Self-treatment	0	4(40)
No treatment	0	0.7(7)

#### (b) Medicine used

All the respondent of the organized system used allopathic medicine for the treatment. In backyard system 55 per cent of respondents used allopathic medicine for the treatment of birds while 33 per cent used homemade medicines, rest 3 per cent ayurvedic medicine and 2 per cent homeopathy. Around 7 per cent don't use any medicine.

**Table 3.17(b):** Classification of the respondents according to medicine used

Medicine used	Organized (n=10)	Backyard (n=10)
Allopathic medicine	10(100)	5.5(55)
Ayurvedic medicine	0	0.3(3)
Homeopathy	0	0.2(2)
Home made	0	3.3(33)
No medicine	0	0.7(7)

#### (c) Vaccination

All the respondent of organized system vaccinated their birds whereas none of the respondents in backyard system did any vaccination of their birds.

#### (d) Type of vaccination

Results shows that all the respondents of organized system vaccinated their birds against Newcastle disease, Marek's disease and Infectious Bursal disease

**Table 17(c):** Classification of the respondents according to type of vaccination

Types of vaccination	Organized (n=10)	
	Yes	No
Newcastle disease	10(100)	0
Marek's disease	10(100)	0
Infectious Bursal disease	10(100)	0

#### (e) Source of vaccine

Majority of respondents (80%) purchase the vaccine input from the local dealers whereas (15%) and (5%) of the respondents got the vaccine from the market and govt. supply respectively.

**Table 17(d):** Classification of the respondents according to source of vaccine

Source of vaccine	Organized (n=10)
Local input dealers	8(80)
From market	1.5(15)
Govt. supply	0.5(5)

**(f) Cause of mortality of birds**

All the respondents claimed that major cause of mortality is due to diseases. 95 per cent of the respondents under organized system reported mortality due to outbreak of disease. Whereas 97% of mortality in backyard system due to predators attack.

**Table 3.17(e):** Classification of the respondents according to cause of mortality of birds

Cause	Organized (n=10)	Backyard (n=10)
Disease	9.5(95)	0.3(3)
Chilling	0.5(5)	0
Attack of predators	0	9.7(97)

**(g) Disease encountered**

Table 3.17(g) reveals that majority of respondents of the organized system (80%) each reported that Coccidiosis and IBD. About 30% reported Respiratory diseases in their farms. In backyard system around 23 per cent respiratory problems, 12 per cent Fowl pox, 20 per cent Coccidiosis, 17 per cent IBD and 12 per cent Ranikhet diseases were reported.

**Table 17(f):** Classification of the respondents according to disease encountered to birds

S.No.	Disease encountered	Organized (n=10)	Backyard (n=10)
1.	Respiratory disease	3(30)	2.3(23)
2.	IBD	8(80)	1.7(17)
3.	Coccidiosis	8(80)	2(20)
4.	Fowl pox	0	1.2(12)
5.	Ranikhet	1.2(12)	1.2(12)

In back yard poultry rearing system the chickens are fed with kitchen waste and grain, they receive no medication while in organized system company feed and homemade feed were used and they receive medication.

**4. Summary and conclusion**

The study will provide and insight of managerial practices in organized and backyard farms of Varanasi district of U.P. state. The study will also aid in effective promotion of poultry production and will help to generate information about the practices related to poultry production followed under different systems.

In both organized and unorganized system majority of respondents were getting very often information from veterinarian as formal source and access from other poultry farmers in the village as informal source of communication. While TV and newspaper were most commonly used electronic and printed media used by both organized and unorganized system of poultry owners.

In organized system were practicing semi intensive and intensive system of poultry farming, whereas, in unorganized system all respondent were practicing extensive system of poultry production in all the five districts. Under organized system all the respondents were rearing broiler and they provide separate houses. Majority of poultry owners rearing birds in unorganized system made necessary arrangements for

night shelters of the bird to protect them from predators.

Majority of poultry owners in unorganized system kept the birds in kacha house prepared by locally available Plasticfeederer and waterers are provided by majority of respondents in organized farming system.

In backyard poultry rearing, the practice prevalent in the rural area was of leaving the bird for scavenging in the morning and also giving hand full of grains. The birds generally scavenged on locally available feed and seeds but in organized system of poultry rearing the birds are provided with regular feeds in their house.

In back yard poultry rearing system the chickens are fed with kitchen waste and grain, they receive no medication while in organized system company feed and homemade feed were used and they receive medication.

Majority of the respondents of organized system feed their birds 3 to 4 times and twice a day respectively where as in unorganized system the birds are released in the morning and left the birds for scavenging in the surrounding of the house, gardens, field etc. from where they fulfill their requirement of feed.

Majority of respondent feed 90 to 110 gm feed per day whereas 30% and 20% respondent fed 110 to 130 gm. and 70 to 90 gm. in organized system respectively. In unorganized system the birds generally fed ad-lib from scavenging.

In organized system of poultry rearing majority per cent of respondents were providing tap water as a source of drinking water to their birds while in backyard system of poultry rearing respondent use open drains as a source of drinking water.

In organized system of poultry rearing that majority of respondents treat the birds by veterinary doctors while in unorganized system major 40 percent of respondents treated the birds by self-treatment followed by paravets (27%). About 7 per cent respondents in unorganized system did not treat their birds.

Majority respondents of organized system claimed that major cause of mortality is due to outbreak of diseases while majority respondents of unorganized system reported mortality due to the attack of predators.

Majority of respondents of the organized system reported that Coccidiosis and IBD are major disease affecting production while in unorganized system respiratory problems, Fowl pox, Coccidiosis, IBD and Ranikhet diseases were reported which affects production.

Majority respondents of organized system purchased their chick from govt. and local input dealer/ private hatcheries respectively while unorganized poultry farmers used natural hatching at home and few respondents purchased the chicks from either from feriwala or local input dealer.

Majority of the poultry owners in unorganized system reported 60 to 65 eggs per year and the first egg production above 30 weeks.

Majority respondents of organized system sold their birds (broiler) at 6 week of age while in unorganized majority of respondents sold their birds more than 80 weeks.

Majority respondents of organized system disposed their birds when the body weight reached 1.25 kg while all the respondents of unorganized system disposed their birds when the body weight reached more than the 1.25 kg. Majority of the respondents of the unorganized system did not sell their eggs.

A common aspect of the sale of poultry was that a high

proportion was sold live. In unorganized system birds were sold on special occasion. In organized system most of the respondents sold their birds through middleman according to the market price. Family size and size of land holding had positive and non-significant correlation with the management practices in both organized and backyard poultry production.

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