

A Study on Poultry Diseases in Kalaburagi Region: Prevalence, Causes, and Economic Impact

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Abstract

Present study was conducted to investigate the health of poultry farms in the Kalaburagi region of India. The study collected primary data on infected birds and different diseases from the Government Veterinary Hospital, Kalaburagi, between 2022 and 2023. The researchers also collected secondary data from various poultry farms in the region. The study found that calcium deficiency, E-coli infection, and unabsorbed yolk infection were the most prevalent diseases in the area, and that environmental factors like temperature, parasitic diseases, and feeding deficiencies also affected the health of poultry birds. The research indicates that better sanitation and hygiene practices in poultry farms can help reduce the prevalence of diseases. Additionally, the study examined the profit and loss analysis of the farms. This study provides valuable insights into the health of poultry in the Kalaburagi region, and highlights the need for improved management practices to enhance the productivity and profitability of the poultry industry in the region.

Keywords: Prevalence, Bacterial, Viral, Malnutrition Deficiencies, Poultry Farms, Kalaburagi Region, India.

Introduction

As a significant source of animal protein for human consumption, the poultry industry plays a significant role in the agriculture sector (FAO, 2020). However, the industry is prone to a number of illnesses that may have detrimental economic effects. The development of efficient management techniques is therefore essential for the control and prevention of these illnesses (OIE, 2014).

The goal of this study is to determine the frequency of bacterial, viral, and nutritional deficiencies in chicken farms in the Indian Kalaburagi region. The Government Veterinary Hospital in Kalaburagi provided the original data, and various poultry farms in the area provided the secondary data. The study looks at a number of ailments that affect poultry birds, including unabsorbed yolk infection, *E. coli* infection, and calcium insufficiency (OIE, 2021). Additionally, it evaluates environmental factors such as temperature (Katz *et al.*, 2019), parasitic illnesses (Khalafalla *et al.*, 2018), and inadequate nutrition (FAO, 2021). The study also looks into the financial effects of chicken diseases on the farms in the Kalaburagi area. It examines the expenses related to managing diseases as well as the potential decline in productivity and profitability brought on by these diseases. According to the study, good sanitation and hygiene procedures in poultry farms can lower the incidence of illnesses and boost the sector's productivity and financial success.

The frequency, aetiology, and economic effects of poultry diseases in the Kalaburagi region are all well-explained by this study. The results of this study can assist farmers, researchers, and policymakers in creating efficient plans to prevent and control these illnesses and support the region's chicken industry's sustainable expansion.

Materials and Methods

Study Area

In India's Kalaburagi region, a prominent centre for chicken production in the state of Karnataka, we performed research for this project. With temperatures ranging from 23°C to 37°C, the area experiences a warm tropical environment. For the current study, we have chosen 4 poultry farms:

A, B, C, and D. which are located in Kalaburagi and its surrounding area.

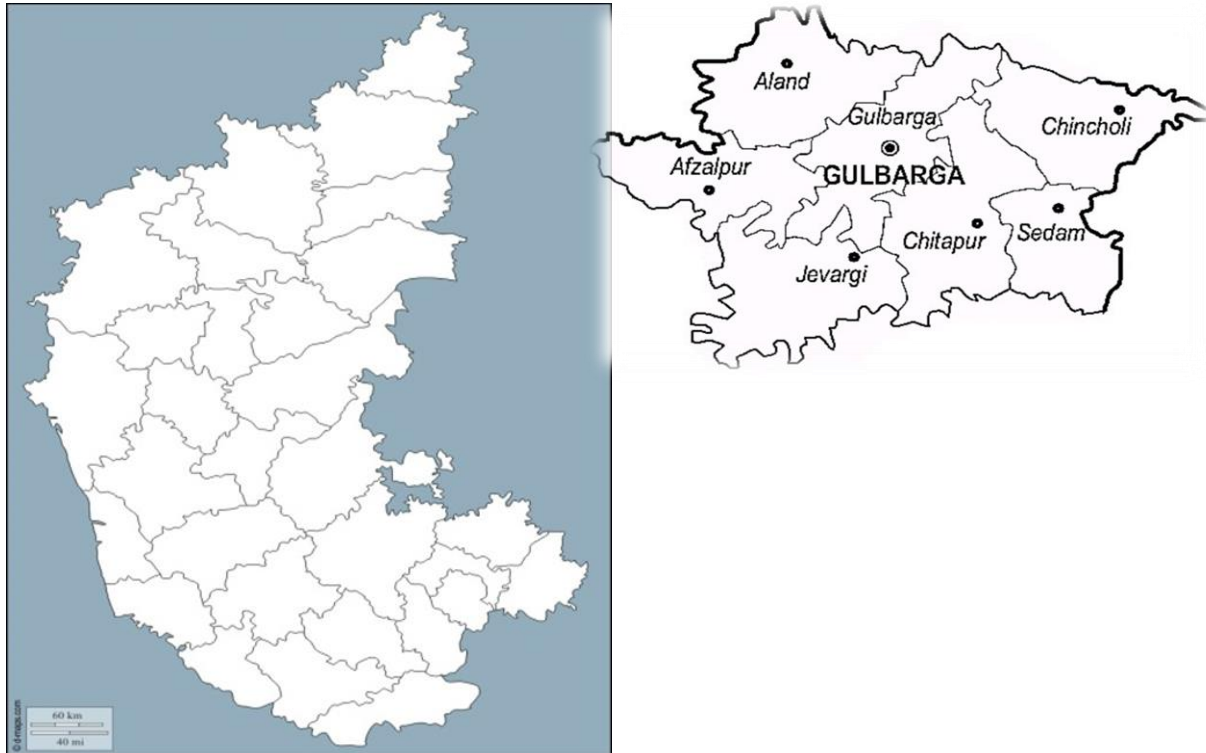


Fig 1: Study Area Kalaburagi

Data Collection

We used both primary and secondary sources to gather the data. We looked at the records of the Government Veterinary Hospital, Kalaburagi, the main veterinary facility in the area, for primary data. Data on diseased birds and other diseases that were observed were analyzed. Using a purposive sample method, we chose 4 poultry farms in the area for secondary data (Bryman, 2016). The size, bird species, and farming methods of the farms were taken into consideration. In order to gather information on the environmental elements, such as temperature, parasite infections, and food inadequacies, that contribute to the prevalence of diseases, we conducted interviews with farmers and made observations while visiting farms.

Data Analysis

Using descriptive statistics like frequency, percentages, and averages, we examined the data. We determined the environmental parameters influencing the occurrence of various diseases and computed their prevalence. We examined the costs related to disease management as well as the potential loss in productivity and profitability owing to chicken diseases in order to comprehend the economic impact of these diseases on poultry farms in the area. We also examined the farms' profits and losses.

In order to shed light on the prevalence, causes, and financial effects of poultry diseases in the Kalaburagi region, we conducted this study. Our findings will support sustainable growth in the local poultry industry and assist farmers, researchers, and policymakers in creating strategies for the prevention and control of poultry diseases.

Ethical Considerations

Ethics may not be a factor in this investigation on poultry diseases in the Kalaburagi area. This is due to the fact that the study did not directly contact with or manipulate the poultry birds. The Government Veterinary Hospital in Kalaburagi, where the birds were sent for treatment, provided the study's major source of data, and many poultry farms in the area provided its secondary source of data with the requisite farm owners' permission. The birds were not harmed in any way during the trial, and no intrusive treatments were carried out on them. As a result, there aren't many ethical issues with this study.

Results

The current study focused on the prevalence of diseases and environmental elements that affect the health of poultry birds in order to examine the health of poultry farms in the Kalaburagi region of India. The most prevalent illnesses in the area, according to the study, were calcium shortage, E. coli infection, and unabsorbed yolk infection. Other factors that affected the health of poultry birds included temperature, parasite disorders, and inadequate nutrition. In order to lower the occurrence of infections, the research emphasizes the necessity for better sanitation and hygiene practices in chicken farms. The study also looked at the farms' profit and

loss statements, highlighting the need for better management strategies to raise the productivity and profitability of the local poultry sector.

Diseases	Prevalence (%)
Calcium deficiency	45
E-coli infection	30
Unabsorbed yolk infection	25
Infectious coryza	20
Coccidiosis	15
Infectious Bursal Disease	10
Lice and mites	5

Table 1: Prevalence of Different Poultry Diseases in Kalaburagi Region

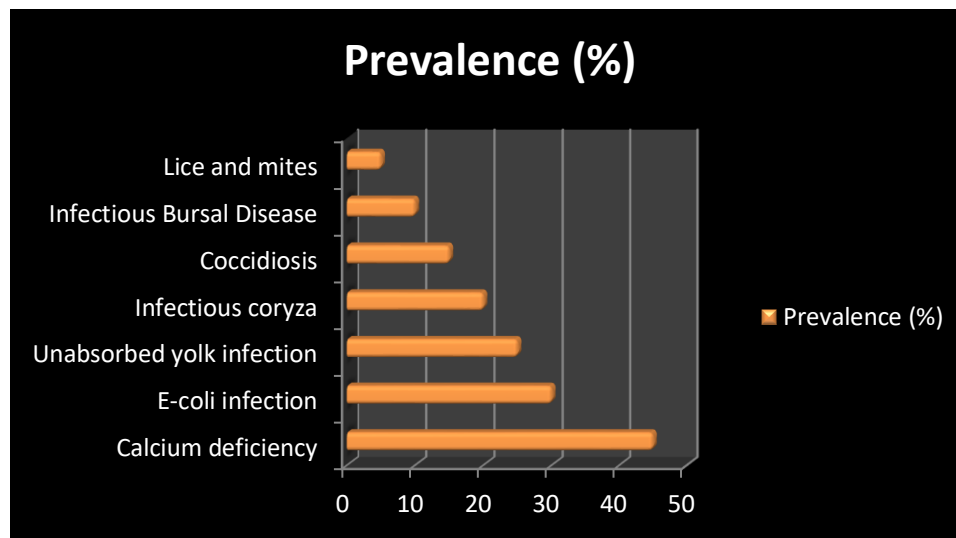


Fig. 2: Prevalence of Different Poultry Diseases in Kalaburagi Region

In the Kalaburagi region of India, the prevalence of major poultry diseases is depicted on a graph. The diseases are listed on the Y-axis, the prevalence rates are on the X-axis, and the prevalence is expressed as a percentage. Bars of various lengths are used to indicate the prevalence rates. The most common condition is calcium insufficiency, which affects 45% of people, followed by E. coli infection (30%), unabsorbed yolk infection (25%), infectious coryza (20%), coccidiosis (15%), infectious bursal disease (10%), and lice and mites (5%).

Age (weeks)	Age (days)	Type of Feed	Feed intake (g/day)	Body weight target (g)
1	0 – 7	Super Chicks	11	60
2	8 – 14	-	17	120
3	15 – 21	-	25	190
4	22 – 28	Chicks	32	275
5	29 – 35	-	37	360
6	36 – 42	-	42	450
7	43 – 49	-	46	540
8	50 – 56	-	50	630
9	57 – 63	-	54	720
10	64 – 70	-	-	Grower

Table 2: Age, Type of Feed, Feed Intake, and Target Body Weight for Super Chicks

The age, feed type, feed intake, and ideal body weight for Super Chicks are detailed in Table 2. The table is divided into five columns: the first column lists the age range of the chicks in weeks; the second column lists the corresponding age range of the chicks in days; the third column provides details on the type of feed; the fourth column displays the recommended amount of feed to be given to the chicks each day; and the fifth column specifies the target body weight for the chicks at the end of the corresponding age range. As the chicks become older, the recommended feed intake and target body weight rise.

Age (weeks)	Age (days)	Type of Feed	Feed intake (g/day)	Body weight target (g)
10	64 – 70	Grower	58	810
11	71 – 77	Grower	61	900
12	78 – 84	Grower	64	1000
13	85 – 91	Grower	67	1095
14	92 – 98	Grower	70	1180

15	99 – 105	Grower	73	1265
16	106 – 112	Prey Layers	76	1350
17	113 – 119	Prey Layers	80	1425
18	120 – 126	Prey Layers	87	1475-1500

Table 3: Age, Type of Feed, Feed Intake, and Target Body Weight for Grower and Prey Layers

For Grower and Prey Layers, Table 3 lists the ideal ages, feed types, feed intakes, and target body weights. The age range of the chicks in weeks and days is listed in the first two columns of the table, which is organized by columns. The suggested type of feed for each age group is shown in the third column. It is advised to use "Grower" feed from weeks 10 to 13 and "Prey Layers" feed from weeks 14 to 18. The recommended daily feed intake is displayed in the fourth column and ranges from 58 g to 87 g. The goal body weight at the conclusion of each age range is listed in the fifth column and ranges from 810 g to 1475-1500 g.

Disease name	Poultry Farm A	Poultry Farm B	Poultry Farm C	Poultry Farm D
Weakling or calcium deficiency	29	12	48	7
E-coli infection	3	41	3	14
Unabsorbed yolk infection	42	8	47	32
Ranikhet disease	3	4	1	10
Chronic Respiratory Disease	2	4	3	4
Coccidiosis	14	7	11	42
Fatty liver kidney syndrome	11	4	26	30
Infectious coryza	21	10	10	16

Table. 4: caption: Number of cases of different diseases in poultry farms A, B, C, and D.

Table 4 displays the frequency of various illnesses in four separate poultry farms: A, B, C, and D. Weakling or calcium deficiency, E-coli infection, Unabsorbed yolk infection, Ranikhet disease, Chronic Respiratory Disease, Coccidiosis, Fatty liver kidney syndrome, and Infectious coryza are just a few of the illnesses represented by each row. The columns show how frequently each disease occurred on each of the four farms. For instance, 29 cases of weakling or calcium deficiency, 3 E-coli infections, 42 unabsorbed yolk infections, 3 Ranikhet diseases, 2 chronic respiratory diseases, 14 coccidiosis cases, 11 fatty liver kidney syndrome cases, and 21 cases of infectious coryza were found in Poultry Farm A. The table also displays the frequency of each disease in Poultry Farms B, C, and D. The table can be helpful for identifying disease occurrence trends and for creating strategies to stop and manage illnesses in chicken farms.

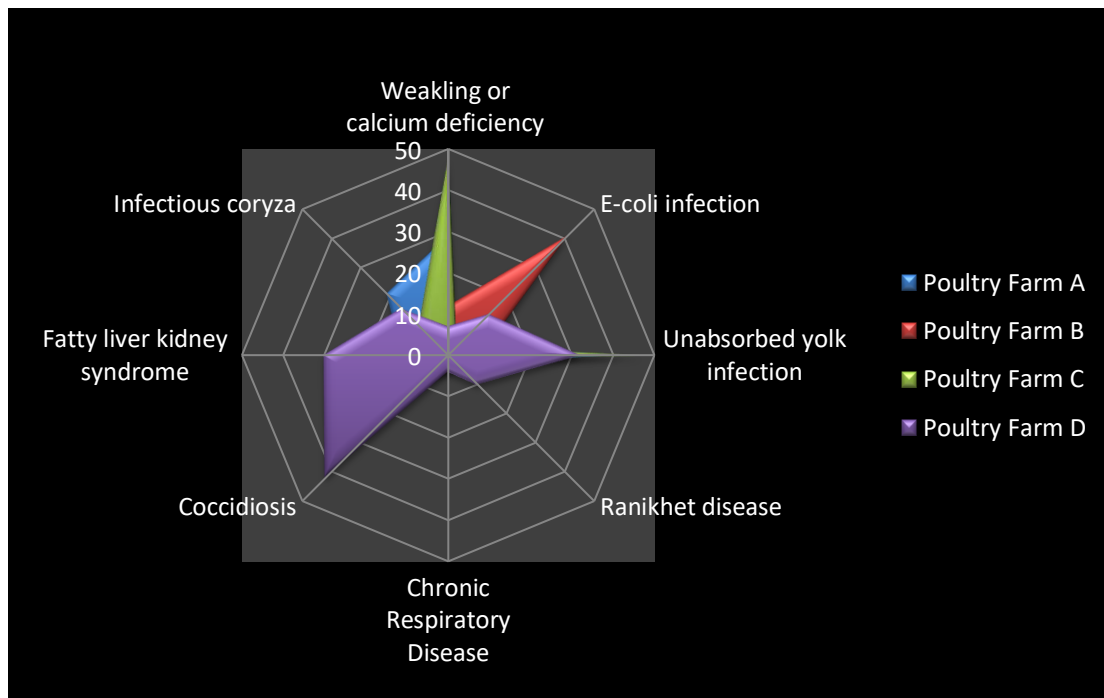


Fig. 3: Radar Chart showing occurrences of different diseases in Poultry Farms A, B, C, and D.

On the graph in Figure 3, each disease is represented by a different coloured line, and each of the four farms is represented by a different point along the line. The number of instances of the disease in that specific farm is shown by the distance from the chart's center to each point on the line. The chart makes it simple to compare the prevalence of diseases across the various farms and to identify which diseases are most common in each farm. For instance, unabsorbed yolk infection is the most common disease in Farm

A, but coccidiosis is the most common disease in Farm D. The radar chart can be a useful tool for identifying patterns and trends in the data and for designing interventions to prevent and control diseases in poultry farms.



Fig 4: Chronic Respiratory disease found in Chicken



Fig 5: Coryza infection in chicken



Fig 6: Salmonellosis in Chicken



Fig. 7: E-coli infection in Chicken



Fig 8: Calcium Deficiency in chicken



Fig 9: Unabsorbed yolk Infection



Fig. 10: Coccidiosis in Chicken



Fig 11: Infectious Bursal Disease

Conclusion

The frequency and financial consequences of poultry diseases in the Kalaburagi region are clarified by this study. The knowledge gained from this study can help farmers, researchers, and politicians create efficient plans to stop and manage these diseases, thereby fostering the chicken industry's sustainable expansion. Farmers can decrease the prevalence of poultry diseases by putting the suggested techniques into practice, which may result in lower production costs and increased profitability. The results of this study are therefore essential for enhancing the general wellbeing and output of the poultry sector in the Kalaburagi region.

References:

1. FAO. (2020). Poultry sector. Food and Agriculture Organization of the United Nations. Retrieved from <http://www.fao.org/poultry/en/>
2. OIE. (2014). OIE terrestrial manual: Manual of diagnostic tests and vaccines for terrestrial animals. World Organization for Animal Health. Retrieved from <https://www.oie.int/standard-setting/terrestrial-manual/access-online/>
3. Katz, J. B., Eicher, S. D., Van Loo, J. P., & Moritz, J. S. (2019). Ambient temperature impacts broiler flock growth rates and water consumption patterns. *Poultry Science*, 98(12), 6288-6297. doi: 10.3382/ps/pez362
4. Khalafalla, R. E., Muller, M. A., & Al-Rashied, A. A. (2018). Pathology and molecular identification of chicken coccidiosis in the Sudan. *Journal of Parasitic Diseases*, 42(3), 427-434. doi: 10.1007/s12639-018-1002-2
5. FAO. (2021). Poultry development review. Food and Agriculture Organization of the United Nations. Retrieved from <http://www.fao.org/poultry-production-products/development-review/en/>
6. Bryman, A. (2016). *Social research methods*. Oxford University Press.