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POINT SEROPREVALENCE OF CHICKEN ANAEMIA VIRUS AND INFECTIOUS LARYNGOTRACHEITIS VIRUS IN VILLAGE AND COMMERCIAL POULTRY SYSTEMS IN SELECTED AREAS OF CENTRAL AND NORTH WESTERN PROVINCES OF SRI LANKA

F. N. Hassim[1], E. G. N. H. Jayawardhana[1], W. D. A. S. Ekanayaka[1], Y. K. Jayawardana[1], S. U. G. Amarasena[2], T. A. Gunawardana[2], D. H. S. P. Meththananda[3], W. M. A. D. Wanninayake[3], S. Puvanendiran[3], M. N. M. Fouzi[1], N. D. Karunaratne[1]*

[1]*Department of Farm Animal Production and Health, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya, Peradeniya, 20400, Sri Lanka*
[2]*Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya, Peradeniya, 20400, Sri Lanka*
[3]*Animal Virus Laboratory, Department of Animal Production and Health, Polgolla, 70000, Sri Lanka*

SUMMARY: The poultry industry in Sri Lanka plays a crucial role in economic development and nutritional security. This study aimed to evaluate point seroprevalence and risk factors of chicken anaemia virus (CAV) and infectious laryngotracheitis virus (ILTV) in village chickens within the Central Province, and also assess the point seroprevalence of ILTV in commercial layers from the Central and North Western Provinces. A cross-sectional survey and serological assessment were conducted at village chicken farms in the Central Province, and 48 blood samples were collected for antibody detection. Additionally, 311 blood samples from commercial layer flocks in Central and North Western Provinces were tested for ILTV seroprevalence. Chi-square tests were performed to identify associations between antibody prevalence and risk factors. Semi-intensive rearing was predominant (75%), with only 18.75% of farmers vaccinating (for Newcastle disease) their flocks and 37.50% practicing deworming. Nutritional supplementation varied, 50% providing calcium and 62.50% providing vitamin supplements. Despite 68.75% of farmers consulting veterinarians, significant health challenges persisted. Serological analysis indicated a high prevalence of CAV (87.50%) and ILTV (66.67%) in village chickens. CAV seroprevalence was significantly associated with flock size ($P = 0.04$) and veterinary consultation ($P = 0.05$). Seroprevalence of ILTV in village chickens showed no significant associations with risk factors. In contrast, ILTV seroprevalence in commercial poultry was markedly lower, with the prevalence rates of 13.26% in the Central Province and 5.63% in the North Western Province. The study highlights the multifaceted challenges in village poultry farming, including high disease prevalence, limited vaccination coverage, and nutritional deficiencies, and suggests that poultry farming can be strengthened by addressing these gaps.

Keywords: Poultry Diseases, Backyard Poultry, Village Chicken, Seroprevalence, Viral Diseases

INTRODUCTION

The livestock industry, particularly poultry farming, is integral to both the economic stability and nutritional sustenance of communities in Sri Lanka. This sector includes a range of strains, from exotic and mixed breeds to indigenous chickens adapted to local environments (Silva and Dematawewa, 2020). The commercial broiler and layer industry in Sri Lanka is a well-established sector primarily managed by medium and large-scale private producers, with additional contributions from the government and the National Livestock Development Board (Manjula *et al.*, 2018). The village or backyard poultry farming model, characterised by low cost, extensive management under sometimes harsh environmental conditions, particularly thrives with indigenous strains (Rajkumar *et al*., 2021). These strains exhibit strong adaptability and efficient resource use, making this model cost effective for rural communities (Silva *et al*., 2016). The poultry sector's contribution to Sri Lanka's Gross Domestic Product and tax revenue highlights its significance within the broader livestock economy. Unlike certain cultural restrictions around other animal products, poultry products are widely accepted and consumed, highlighting their cultural

Corresponding author: N. D. Karunaratne, E-Mail: nkarunaratne@vet.pdn.ac.lk

integration and nutritional importance (Atapattu *et al*., 2016).

Poultry farming in Sri Lanka encompasses diverse production systems, from intensive commercial operations to small scale backyard models (Manjula *et al.,* 2018; Silva *et al*., 2016). Intensive systems are capital and labour intensive, often vertically integrated to meet market demand. In contrast, backyard poultry farming is a decentralised, low-input system where indigenous chickens are allowed to forage freely (Mufeeth *et al*., 2018). This model, though adaptable and low-cost, often exhibits modest productivity relative to commercial strains, limited by challenges such as low reproductive efficiency, high mortality, and limited access to veterinary services. Nonetheless, initiatives focused on introducing improved strains and enhancing veterinary care offer potential pathways to boost productivity and sustainability in backyard poultry systems (Rajkumar *et al*., 2021).

The poultry sector's dynamics extend beyond economics, interweaving with cultural, religious, and socio-political dimensions. This shift can impact the social and cultural frame of rural areas, making an in-depth exploration of these practices and their implications vital for sustainable rural development (De Zoysa *et al*., 2025). Within this context, understanding the health status of village chickens, including the prevalence of specific infectious diseases, is essential. This study investigates not only management and health factors but also the seroprevalence of chicken anaemia virus (CAV) and infectious laryngotracheitis virus (ILTV), both of which pose significant risks to backyard and commercial poultry. Chicken anaemia virus, a non-enveloped DNA virus under the Circoviridae family, primarily affects young birds lacking maternal antibodies, causing aplastic anaemia, haemorrhagic syndrome, and immune suppression, which increase vulnerability to secondary infections (Eltahir *et al*., 2011; Simeonov, 2009; Kamdi *et al*., 2020). Infectious laryngotracheitis virus, a herpesvirus, primarily targets the respiratory tract and can lead to conjunctivitis, respiratory distress, and high mortality, particularly in densely housed or inadequate biosecurity settings (Blakey *et al*., 2019; Dufour-Zavala, 2017). Both diseases are transmitted via both vertical and horizontal routes; however, information on their epidemiology in village poultry populations in Sri Lanka remains limited.

This study aims to determine the point seroprevalence of Chicken Anaemia Virus (CAV) and Infectious Laryngotracheitis Virus (ILTV), and associated risk factors in village chickens within selected areas of Central Province, Sri Lanka. Additionally, it seeks to evaluate the point seroprevalence of ILTV in commercial layer populations from Central and North Western Provinces. By evaluating the point prevalence of these antibodies and associated management practices, this research may contribute sustainable management strategies that can enhance poultry health and productivity. Such insights are critical to supporting the livelihoods of smallholder farmers and promoting a resilient poultry system that benefits both human and animal health. Furthermore, it contributes to reducing the risk of disease transmission from village poultry farms to the commercial poultry industry.

MATERIALS AND METHODS

Ethical approval

Ethical approval for the experimental procedure was obtained from the Committee for the Ethical Clearance on Animal Research of the Faculty of Veterinary Medicine and Animal Science, University of Peradeniya, Sri Lanka (Ethical clearance certificate number: VERC-22-13).

Study design and area

This cross-sectional study was conducted to assess the point seroprevalence of Chicken Anaemia Virus (CAV) and Infectious Laryngotracheitis Virus (ILTV) in village and commercial poultry systems in Sri Lanka. The study area encompassed selected regions within Central and North Western Provinces, chosen to represent different poultry production systems and management practices. The study on village chickens was carried out in the Kandy District of the Central Province from September to December 2023. Four veterinary ranges within the Kandy district were selected: Gampola, Gangawatakorale,

Udunuwara, and Thalathuoya. These areas were chosen to represent typical village chicken farming environments in the Central Province, characterised by mixed agricultural systems with smallholder farming practices. The North Western Province was selected for commercial layer sampling due to its status as the Province with the highest poultry density in Sri Lanka, representing approximately 35% of the national commercial poultry population. Central Province was additionally included for sampling from commercial layers based on accessibility and to enable comparison with village chicken data from the same Province. Blood sampling of commercial layer chickens was completed in 2024.

Sample size calculation and sampling strategy

For village chickens, due to resource constraints, a minimum sample size of 43 birds was calculated for a preliminary assessment of seroprevalence based on an expected prevalence of 50% (Thrusfield, 2018). In the absence of previous seroprevalence data for CAV and ILTV in Sri Lankan village chickens, this conservative estimate was assumed to ensure an adequate sample size for the detection of any prevalence level, with a desired precision of ±15% and 95% confidence level. To account for potential sample losses, 48 birds were sampled. A two-stage sampling approach was employed. First, four veterinary ranges were selected through convenience sampling from the Kandy district; second, four farms were randomly selected from each veterinary range from lists provided by veterinary surgeon offices. Three birds were randomly selected from each farm, a total of 16 farms were included for the survey and blood sample collection.

For commercial layers, sampling was opportunistic, utilising samples submitted to the Animal Virus Laboratory, Polgolla, as part of routine government mandated Avian Influenza surveillance programs. This approach ensured access to a larger number of samples while minimising additional costs and animal handling stress.

Data and sample collection

A total of 48 blood samples were collected from village chickens across the four selected veterinary ranges. Farm selection was facilitated through coordination with local veterinary surgeons' offices, which maintained records of registered poultry farmers in their respective areas. Verbal informed consent was obtained from all participating farmers prior to sample collection, with explanations provided in the local language regarding the study objectives and procedures. The birds from village chicken farms included in the study had not received vaccinations for ILTV or CAV.

Blood samples (1-2 mL) were collected from the wing vein using sterile 3 cc syringes and 23 gauge needles. Birds were manually restrained by trained personnel, and the sampling site was disinfected with 70% isopropyl alcohol before venipuncture. Blood was immediately transferred into sterile blood collection tubes without an anticoagulant and labelled with unique identifiers. Samples were transported to the laboratory in insulated cooler boxes maintained at 4-8°C within 2 hours of collection to ensure sample integrity.
Additionally, 311 blood samples from commercial layer flocks were obtained, including 98 samples from Dambulla (Central Province) and 213 samples from Wariyapola (North Western Province). These samples were obtained from 34 commercial layer farms in total. These samples were originally collected as part of routine Avian Influenza surveillance under government monitoring programmes and were made available for ILTV testing with appropriate permissions from the Department of Animal Production and Health. The vaccination details of these commercial farms were not accessible.

Laboratory procedures

Serum separation was completed within 24 hours of sample collection. Blood samples were centrifuged at 3,000 rpm for 15 minutes using a refrigerated centrifuge (HERMLE Z 300, Wehingen, Germany). Separated serum was carefully aspirated using sterile pipettes and transferred to labelled sterile microcentrifuge tubes (1.5 mL capacity). Serum samples were stored at -20°C until ELISA testing was performed, with storage

duration not exceeding 6 months to maintain antibody stability.

Enzyme-linked Immunosorbent Assay (ELISA) was performed using commercial test kits following the manufacturer's protocols. For CAV antibody detection, the IDEXX CAV Antibody Test Kit (IDEXX Laboratories, Inc., Westbrook, Maine, USA) was used, which is based on indirect ELISA methodology with recombinant VP1 antigen. For ILTV antibody detection, the ID Screen ILT Indirect Test (IDvet, Grabels, France) was employed, utilising purified ILTV antigen in an indirect ELISA format. All ELISA procedures were conducted in duplicate, with positive and negative controls included in each plate as per the manufacturer's instructions. Optical density values were measured at 450 nm using an automated microplate reader (BioTek ELx800, Winooski, Vermont, USA). The assays define positive and negative results based on the sample to negative control (S/N) ratio. Under field exposure conditions, the assays were able to reliably detect antibodies in samples diluted 1:10, demonstrating sufficient sensitivity to identify low level antibodies in naturally exposed birds. This dilution also helps reduce nonspecific reactions and ensures that optical density readings remain within the linear range of the assay.

Questionnaire Survey

A structured questionnaire survey was conducted concurrently with blood sample collection to assess management practices and potential risk factors associated with village chicken farming. The questionnaire was developed based on a literature review and expert consultation. The questionnaire comprised four main sections, including basic farm demographics and management practices, health management and veterinary care, biosecurity and husbandry practices, and socio-economic factors. Questions were designed using a combination of closed-ended and multiple-choice formats to facilitate standardised data collection. Interviews were conducted in the local language, with responses recorded directly onto paper forms and later digitised for analysis. Informed consent from the farmers was obtained before conducting the survey. To enhance data reliability, direct observations of housing systems, feeding practices, and general farm conditions were conducted and recorded alongside questionnaire responses.

Data analysis

Data was analysed using STATA statistical software (StataCorp LLC, TX). Questionnaire data were entered into a Microsoft Excel sheet, and missing or inconsistent data were verified by contacting farmers where possible or excluded from specific analyses if verification was not feasible. The analysis process began with calculating the total number of valid responses by tallying the returned questionnaires. The responses to questions were then tabulated to determine the frequency of individual answers. Descriptive statistics were used to summarise the prevalence of CAV and ILTV antibodies in the sampled village chickens and the samples submitted from commercial poultry. The seroprevalence rates were expressed as percentages with 95% confidence intervals. Chi-square tests were performed to assess the association between seroprevalence rates of CAV and ILTV in the different veterinary ranges, and potential risk factors associated with CAV and ILTV seropositivity, considering variables such as flock size, vaccination history, and farm management practices. Statistical significance was considered when $P \leq 0.05$.

RESULTS

The numbers and percentages of the point seroprevalence of CAV and ILTV of village and commercial poultry from Central and North Western Provinces, Sri Lanka, are presented in Table 1. The results of the evaluation of management, health, and socio-economic risk factors on village chicken farms in the Kandy, Central Province, are summarised in Table 2, which includes the frequency and percentages for these variables. A significant association is found for the prevalence of CAV with flock size and consultation of veterinarians. The associations of calcium supplementation and water source with CAV prevalence tended to be significant. However, no other associations were observed between CAV prevalence and other risk factors that were evaluated in the current study (Table 3). There were no significant associations between the seroprevalence of ILTV and the evaluated risk factors, except for the tendencies observed with water source, veterinary range, and the gender of the farmer (Table 4).

Table 1. Point seroprevalence of chicken anaemia virus and infectious laryngotracheitis virus in selected areas of Central and North Western Provinces, Sri Lanka

Area	Category	Frequency	Percentage
Chicken anaemia virus (village poultry)			
Central Province	Negative	06	12.50
	positive	42	87.50
Infectious laryngotracheitis virus (village poultry)			
Central Province	negative	16	33.33
	positive	32	66.67
Infectious laryngotracheitis virus (commercial poultry)			
Central Province	negative	85	86.74
	positive	13	13.26
North Western Province	negative	201	94.37
	positive	12	5.63

Table 2. Evaluation of management, health, and socio-economy related risk factors of village chicken farming in selected veterinary ranges of Kandy, Central Province, Sri Lanka

Variable	Category	Frequency	Percentage
Flock size	small	30	62.50
	large	18	37.50
Method of bird purchasing	market	21	43.75
	natural incubation	15	31.25
	market and natural incubation	12	25.00
Rearing system	intensive	12	25.00
	semi-intensive	36	75.00
Vaccination (for Newcastle disease)	no	39	81.25
	yes	09	18.75
Deworming	No	30	62.50
	yes	18	37.50
Consultation of veterinarians	No	15	31.25
	yes	33	68.75
Indigenous medicine usage	No	42	87.50
	yes	06	12.50
Predation	No	30	62.50
	yes	18	37.50
Commercial feed	No	15	31.25
	yes	33	68.75
Water source	tap line	36	75.00
	well	09	18.75
	tap line and well	03	06.25
Calcium supplementation	No	24	50.00
	yes	24	50.00
Vitamin supplementation	No	18	37.50
	yes	30	62.50
Gender of the farmer	female	24	50.00
	male	24	50.00
Reason for poultry rearing	family consumption	30	62.50
	income source	18	37.50
Level of farmer education	primary	27	56.25
	secondary	21	43.75
Access to the egg market	No	30	62.50
	yes	18	37.50
Targeted products	eggs only	42	87.05
	eggs and live birds	06	12.50

Table 3. Associations between the point seroprevalence of chicken anaemia virus and risk factors in village chicken farming: A Chi-square analysis of selected veterinary ranges in Kandy, Central Province, Sri Lanka

Variable	Chi-square value	*P* value
Flock size	4.11	0.04
Veterinary range	2.29	0.52
Method of bird purchasing	0.72	0.70
Rearing system	2.29	0.13
Vaccination	1.58	0.21
Deworming	1.27	0.26
Consultation of veterinarians	4.00	0.05
Indigenous medicine usage	0.11	0.74
Predation	1.27	0.26
Commercial feed	0.01	0.91
Water source	4.57	0.10
Calcium supplementation	3.05	0.08
Vitamin supplementation	1.27	0.26
Gender of the farmer	0.76	0.38
Reason for poultry rearing	1.27	0.26
Level of farmer education	0.11	0.74
Access to the egg market	1.27	0.26
Targeted products	0.98	0.32

Table 4. Associations between the seroprevalence of infectious laryngotracheitis virus and risk factors in village chicken farming: A Chi-square analysis of selected veterinary ranges in Kandy, Central Province, Sri Lanka

Variable	Chi-square value	*P* value
Flock size	0.00	1.00
Veterinary range	7.50	0.06
Method of bird purchasing	0.51	0.77
Rearing system	2.00	0.16
Vaccination	2.46	0.12
Deworming	0.00	1.00
Consultation of veterinarians	0.43	0.51
Indigenous medicine usage	0.00	1.00
Predation	1.60	0.21
Commercial feed	1.74	0.19
Water source	0.62	0.73
Calcium supplementation	3.37	0.07
Vitamin supplementation	0.00	1.00
Gender of farmer	3.37	0.07
Reason for poultry rearing	1.60	0.21
Level of farmer education	0.00	1.00
Access to egg market	1.60	0.21
Targeted products	0.00	1.00
Chicken anaemia virus prevalence	0.85	0.36

DISCUSSION

The study provides a detailed evaluation of management and health-related factors associated with village chicken farming in the Kandy district, Central Province, highlighting key practices, their implications, and areas for improvement. The majority of farmers adopted semi-intensive rearing systems, combining confined and free-range methods, which are well-suited to their limited financial and infrastructural resources (Sarkar and Mostafa, 2009). This preference aligns with the adaptability and cost-effectiveness of semi-intensive systems, and with the prevalent semi-intensive management system in the Sri Lankan backyard poultry industry, making them a practical choice for small-scale farmers (Hitihamu, 2017; Mokanapriya *et al*., 2021). Intensive systems, requiring higher investment and operational complexity, were less common, reflecting the economic constraints faced by many rural farmers (Singh *et al*., 2022; Bist *et al*., 2024).

Health management practices revealed significant gaps, with only 18.75% of farmers vaccinating their flocks for Newcastle disease and 37.50% practicing deworming. These low rates suggest a lack of awareness, financial limitations, or inadequate access to veterinary services (Hitihamu, 2017; Singh *et al*., 2022). The lack of resources and infrastructure in the village areas affects cold chain maintenance of the vaccines, and also access to vaccines (Alders *et al*., 2010). Nutritional management varied widely among farmers, with 50% providing calcium supplements and 62.5% administering vitamin supplements. Financial constraints and reliance on natural foraging likely contribute to the observed inconsistencies in supplementation (Singh *et al*., 2022; Bist *et al*., 2024). These findings feature the need for educational programmes tailored to farmers' knowledge and resource levels, emphasising the benefits of proper nutrition for poultry health and productivity (Bagnol *et al*., 2013). The observed association between CAV and ILTV prevalence and calcium supplementation in chickens further supports it.

Veterinary consultation was sought by 68.75% of farmers, reflecting a reliance on professional advice for managing poultry health. Despite this, 87.5% did not use indigenous medicine, suggesting a preference for conventional veterinary methods or scepticism about alternative treatments. This preference for conventional practices aligns with broader trends observed in poultry management (Hitihamu, 2017). Limited veterinary access compromises flock health due to inadequate biosecurity protocols and delayed access to vaccines, medications, and professional guidance (Alders *et al*., 2010).

Predation was a notable challenge, affecting 37.50% of farmers and emphasising the vulnerability of poultry to environmental risks. This issue points to the need for improved housing and protective measures, which could mitigate predation losses and enhance flock security (Conan *et al*., 2012; Wong *et al*., 2017). Water management practices showed a preference for tap water among 75% of farmers, reflecting its perceived reliability and safety (Mokanapriya *et al*., 2021). However, the tendency for associations between water sources and the prevalence of CAV emphasises the importance of ensuring water hygiene to prevent disease transmission (Amaral, 2004).

The study highlighted a focus on egg production among most farmers, with 87.5% targeting only egg production and 62.5% raising poultry primarily for family consumption. This finding highlights the subsistence-oriented nature of village chicken farming, where poultry primarily supports household nutrition and occasional income generation. This finding is consistent with the observed trends in Sri Lanka, where poultry farming often serves to enhance family nutrition (Hitihamu, 2017; Mokanapriya *et al*., 2021). Limited access to egg markets, reported by 62.5% of farmers, further constrains the potential for commercial expansion. Addressing these challenges by improving market linkages and creating opportunities for income diversification could enhance the economic viability of poultry farming (Singh *et al*., 2022).

The gender distribution of farmers was evenly split between males and females, while educational attainment was modest, with 56.25% having primary education and 43.75% secondary education. The observed

educational profile reflects the socio-economic context of rural farming communities and highlights the importance of targeted interventions to improve management practices (Ali *et al.*, 2015). Education plays a critical role in influencing specific practices, while additional support and resources are necessary to address gaps in health and management practices comprehensively (Alders et *al*., 2018).

The detected antibody prevalence was higher for CAV (87.50%) than for ILTV (66.67%). Significant associations or tendencies between CAV antibody prevalence and factors such as flock size, veterinary consultation, water source, and calcium supplementation emphasise the multifactorial nature of disease risk. The observed tendencies for associations of ILTV antibody prevalence with veterinary range, calcium supplementation, and farmer gender further highlight the complexity of disease dynamics in village chicken farming systems. These findings emphasise the need for targeted interventions, including improved vaccination strategies, better disease monitoring, and enhanced veterinary outreach to mitigate health risks (Bessell *et al*., 2017; Enahoro *et al*., 2021).

In commercial poultry, the seroprevalence of ILTV was found to be very low in Dambulla (Central Province) and Wariyapola (North Western Province). The prevalence rates in these two regions were comparatively lower than those observed in village chickens. The reduced ILTV prevalence in commercial poultry may be attributed to stringent biosecurity measures implemented by commercial poultry farmers, intensive management practices, and adherence to well-structured vaccination protocols, which collectively help mitigate the risk of infectious diseases (Akter *et al*., 2025).

The present study acknowledges several limitations that may influence the interpretation and generalisability of the findings. The relatively small sample size of 48 village chickens from 16 farms, while adequate for initial prevalence estimates, may have limited statistical power to detect associations between risk factors and disease prevalence. This constraint is particularly evident in the chi-square analyses, where some associations showed tendencies toward significance (P = 0.06-0.10) but did not reach conventional statistical significance levels. Future studies would benefit from larger sample sizes calculated through formal power analysis to ensure adequate detection of clinically relevant associations and to provide more precise confidence intervals around prevalence.estimates (Suresh and Chandrashekara, 2012).

The geographic scope of this study was limited to selected veterinary ranges within the Kandy district of Central Province for village chickens, which may restrict the generalisability of findings to other regions of Sri Lanka with different climatic conditions, management practices, or disease pressures (Gowthaman *et al*., 2020). The convenience sampling approach, while practical given resource constraints, may have introduced selection bias that could affect the representativeness of the studied population (Jager *et al*., 2017). Additionally, the cross-sectional design provides a seroprevalence at a single point in time, and seasonal variations in disease transmission or management practices were not taken into account (Wang and Cheng, 2020). Longitudinal studies spanning multiple seasons and geographic regions would provide more comprehensive insights into the temporal dynamics of CAV and ILTV infections in Sri Lankan poultry systems.

The study's reliance on serological testing, while appropriate for prevalence estimation, does not distinguish between current and past infections, as antibodies may persist long after viral clearance (Tongkamsai *et al*., 2019). Additionally, serological testing cannot differentiate between antibodies derived from natural infection versus vaccination, which could potentially confound prevalence estimates in vaccinated populations (Kafatos *et al*., 2015). In the present study, village chickens exhibited very low vaccination coverage (18.75%), and vaccination was limited to Newcastle disease only. However, as CAV vaccines are live attenuated, limited horizontal transmission of the vaccine-derived virus between birds is possible (Duan *et al*., 2025). In addition, vaccination histories of commercial layer flocks were not available. Consequently, it was not possible in this study to distinguish whether detected antibodies

resulted from natural infection or vaccination for CAV and ILT. This limitation is particularly important when interpreting CAV serological results, given the virus's ability to establish persistent infections and the influence of maternal antibodies in young birds (Kamdi *et al*., 2020; Orakpoghenor, 2019).

The comparison between village and commercial poultry systems, while revealing important differences in ILTV seroprevalence, was limited by the different sampling strategies employed. Commercial poultry samples were collected from routine surveillance programmes and represented only single locations within each Province, potentially limiting the comprehensiveness of the comparative analysis. The absence of CAV testing in commercial samples prevented a complete comparison of disease patterns between production systems.

Overall, the study provides valuable insights into the management practices and health challenges of village chicken and commercial layer farming in Central and North Western Provinces, Sri Lanka. The findings emphasise the need for targeted educational initiatives, improved veterinary services, and infrastructure development to address critical gaps in vaccination, deworming, nutrition, and housing. By addressing these issues, it is possible to enhance poultry health, productivity, and the livelihoods of rural farmers and also commercial producers, contributing to improved food security and economic resilience in the region.

CONCLUSIONS

In conclusion, the study highlights the multifaceted challenges and opportunities associated with village chicken farming in Kandy, Central Province, while highlighting the prevalence of some important infectious diseases among village and commercial chicken farms. The findings reveal significant gaps in health management practices, including low vaccination and deworming rates, as well as inconsistencies in nutritional supplementation, which are influenced by factors such as education, veterinary consultation, and resource availability. The high prevalence of CAV and ILTV antibodies highlights the pressing need for enhanced disease control strategies, while issues like predation and limited market access point to broader systemic constraints faced by small-scale farmers. Addressing these challenges through targeted educational programs, improved veterinary outreach, and the development of supportive infrastructure can help optimise management practices and enhance productivity. By bridging these gaps, village chicken farming can be made more sustainable and resilient, contributing to better livelihoods for rural farmers and bolstering food security in the region.

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