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# Aseel chicken farming in Pudukkottai district: Rearing practices, challenges, and market dynamics

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**Abstract**
The poultry sector in India operates under two major systems: commercial and traditional backyard poultry farming. Backyard poultry, particularly the rearing of indigenous breeds like Aseel chicken, plays a crucial role in rural livelihoods by providing nutrition and supplementary income. This study examines the rearing, feeding, and marketing practices of Aseel chicken in Pudukkottai District, Tamil Nadu. Data were collected from 60 farmers across 10 villages using a structured questionnaire, and analyzed using descriptive statistics with SPSS (2019). The study revealed that 55% of farmers relied on bore well water for poultry, while 71.67% did not follow disinfection practices. Vaccination adherence was low, with only 25% of farmers vaccinating their flocks. Mortality was primarily attributed to a combination of predators, heat stress, climatic changes, and diseases (48.33%), followed by predation alone (26.67%). Marketing trends indicated that 55% of farmers sold birds directly to consumers and local markets, while 25% used middlemen. Sale prices ranged between Rs. 250 to Rs. 400 per kg live weight, with higher rates through middlemen. The findings highlight key challenges in Aseel poultry farming, including poor disease management, high mortality, and limited market access. Addressing these constraints through improved vaccination, biosecurity measures, and organized market linkages can enhance the sustainability and profitability of backyard poultry farming in rural India.

**Keywords:** Aseel chicken, backyard poultry, rural livelihoods, marketing, disease management

## Introduction
India's poultry sector operates through two predominant systems: commercial poultry farming and traditional backyard poultry farming. While commercial poultry farming is largely industrialized and focuses on high-yield broiler and layer breeds, backyard poultry farming remains a crucial component of rural livelihoods, particularly among small and marginal farmers (Chatterjee and Rajkumar, 2015) [3]. It contributes significantly to household nutrition, food security, and additional income, playing a vital role in socio-economic upliftment (FAO, 2018) [5].

Indigenous poultry breeds, such as Aseel chicken, are well-suited for backyard farming due to their adaptability, disease resistance, and superior meat quality. Aseel chickens are known for their hardiness, natural immunity, and ability to thrive under minimal management conditions (Padhi, 2016) [11]. However, backyard poultry farmers face numerous challenges despite these advantages, including inadequate biosecurity measures, poor vaccination practices, high mortality rates, and inefficient marketing systems (Mandal *et al*., 2006) [10]. Research has shown that predation and disease remain major threats to backyard poultry, leading to significant losses (Conroy *et al*., 2005; Alfred *et al*., 2012b) [4, 2].

The objective of this study is to analyze the rearing, feeding, and marketing practices of Aseel chicken in the Pudukkottai District of Tamil Nadu. By identifying the key challenges farmers face and evaluating their management strategies, this study aims to suggest improvements that can enhance the sustainability and profitability of backyard poultry farming. Understanding the market chain dynamics of indigenous poultry is essential to ensuring profitability and sustainability (Kumar *et al*., 2013b) [9]. The findings from this study will provide valuable insights into improving disease control measures, biosecurity, and organized market linkages, thereby supporting the long-term growth and resilience of the rural poultry sector.

## Materials and Methods

### Sample size

The study was conducted using Simple random sampling technique was adopted to select the respondents from the 10 villages in Pudukkottai District, Tamil Nadu. Data were collected from 60 farmers across 10 villages through structured questionnaires. The parameters studied included socio-economic profiles, rearing patterns, feeding practices.

### Geographical and Temporal Scope of the Study

Present Pudukkottai District was formed from parts of Tiruchirappalli and Thanjavur districts on 14th January, 1974. Pudukkottai mainly consists of lowland plain just north of the Vellar river of Tamil Nadu between 9º 51' and 10º 44' North latitude and 78º 25' and 79º 16' East longitude. To determine the different housing patterns, feeding, marketing status of Aseel chicken among rural people along with relevant data collected from different villages of Pudukkottai district.

### Statistical Analysis

Descriptive statistics such as mean, range, frequency and percentage were used to analyze the data using Statistical Package for the Social Sciences (SPSS, 2019).

## Results and Discussion

### Access to Water source

The results of collected data during the study on water sources used by different type of farmers are portrayed in Table 1. Maximum number of the farmers (55%) are using bore well as a major water source followed by 31.67% public water supplies and few farmers (13.33%) using other sources like rain water, pond water, etc. These results were in accordance with the findings of Satheeshkumar, (2011) [12] and Hegde and Shridhar (2012) [6] who also reported that most of the poultry farmers used bore well water.

**Table 1:** Access to Water source

| S. No. | Farmer type | Water source | | | Total |
|---|---|---|---|---|---|
| | | Bore well | Public supply | Others | |
| 1 | Small farmer | 14 | 11 | 6 | 31 |
| 2 | Marginal farmer | 16 | 5 | 1 | 22 |
| 3 | Large farmer | 3 | 3 | 1 | 7 |
| Total | | 33 (55.00%) | 19 (31.67%) | 8 (13.33%) | 60 (100.00%) |

### Adoption of Biosecurity Measures

The study on disinfection of poultry farms in the study area was shown in Table 2. Majority of the farmers (71.67%) are not following the disinfection methods whereas less number of farmers (28.33%) follows chemical method of disinfection for cleaning processes. The results are in contrast with the findings of Mandal *et al*. (2006) [10] who reported that disinfectants are not used in the study area for cleaning.

**Table 2. Adoption of Biosecurity Measures**

| S. No | Disinfection | Total |
|---|---|---|
| 1 | Not following | 43 (71.67%) |
| 2 | Following | 17 (28.33%) |
| Total | | 60 (100.00%) |

### Health Management Practices and Vaccination Status

The results of collected data during the study on vaccination are presented in Table 3. Majority of farmers (75%) were not following vaccination while 25% of farmers followed vaccination. Vaccination was not followed in both All-in-all out system and batch system. This result was in contrast with the findings of Mandal *et al*. (2006) [10] who reported that all the poultry owners did not know the importance of vaccination and had never vaccinated their birds.

**Table 3:** Health Management Practices and Vaccination Status

| S. No | Rearing pattern | Vaccination | | Total |
|---|---|---|---|---|
| | | Following | Not following | |
| 1 | All-in-all out | 7 (11.66%) | 23 (32.14%) | 28 (46.67%) |
| 2 | Batch system | 8 (13.34%) | 24 (42.86%) | 32 (53.33%) |
| Total | | 15 (25%) | 42 (75%) | 60 (100.00%) |

### Factors Affecting Aseel Chicken Survival Rates

The results of collected data during the study on mortality of birds are represented in Table 4. Majority of mortality (48.33%) occurs due to combination of more causes like predators, heat stress, climatic change and disease, followed by 26.67% mortality due to predators, 18.34% due to diseases and 6.66% due to unknown causes. These results are in accordance with the findings of Conroy *et al*. (2005) [4] who reported that Newcastle disease in scavenging chickens in India was not the major cause of mortality but the main cause was predation, by birds of prey and mammals. This result is also similar to the findings of Alfred *et al*. (2012a) [1] who reported that in Tanzania main causative factor for loss of chicks during first six weeks of age was predation (55%) followed by disease incidence (30%), ectoparasites (5%), managemental factors (6%) and unidentified causes (5%).

**Table 4:** Factors Affecting Aseel Chicken Survival Rates

| S. No. | Rearing pattern | Cause of the mortality | | | | Total |
|---|---|---|---|---|---|---|
| | | Predators | Predators, heat stress, climatic change, disease | Diseases | Unknown | |
| 1 | All-in-all out | 10 (16.67%) | 17 (28.33%) | 4 (6.67%) | 2 (3.33%) | 33 (55.00%) |
| 2 | Batch system | 6 (10.00%) | 12 (20.00%) | 7 (11.67%) | 2 (3.33%) | 27 (45.00%) |
| Total | | 16 (26.67%) | 29 (48.33%) | 11 (18.34%) | 4 (6.66%) | 60 (100.00%) |

### Sales Channels and Market Linkages for Aseel Chicken

The results of data during the study on sale of the bird are presented in Table 5. Majority of farmers (55%) are selling their birds directly to consumers and as well as in local shops followed by 25% of farmers selling through middleman and 20% of farmers using combination of more ways of selling their birds. These results were in accordance with the findings of Khandait *et al*. (2011) [7] who also reported about 22% respondents were selling to local shop keepers and 19.17% to middleman.

**Table 5:** Sales Channels and Market Linkages for Aseel Chicken

| S. No. | Farmer type | Using of marketing channel | | | Total |
|---|---|---|---|---|---|
| | | Directly to consumers and Local market | Middleman | Combination of more ways (Local market, through middle man, hotels) | |
| 1 | Small farmer | 14 (23.34%) | 12 (20.00%) | 5 (8.34%) | 31 (51.67%) |
| 2 | Marginal farmer | 17 (28.33%) | 3 (5.00%) | 2 (3.33%) | 22 (26.66%) |
| 3 | Large farmer | 2 (3.33%) | 0 (00.00%) | 5 (8.33%) | 7 (11.66%) |
| Total | | 33 (55.00%) | 15 (25.00%) | 12 (20.00%) | 60 (100.00%) |

**Economic Viability and Price Variations in Poultry Trade**

The results of data during the study on sale price of the birds to consumers directly and through middle man are presented in Table 6a and Table 6b respectively. Majority of farmers sold (45%) their birds at Rs. 350 to Rs. 400 per kg live weight directly to consumers and more than Rs. 400 through middle man. These results are in contrast with the findings of Kumar *et al*. (2013a) [8] who reported that the current price of native chicken in cities like Chennai is in the range of Rs. 270 - 300 per kg live weight.

**Table 6a:** Economic Viability and Price Variations in Poultry Trade (Directly to consumers)

| S. No. | Farmer type | Direct sale to consumers (Rs.) | | | | Total |
|---|---|---|---|---|---|---|
| | | Rs.250 to Rs.300 | Rs.300 to Rs.350 | Rs.350 to Rs.400 | More than Rs.400 | |
| 1 | Small farmer | 3 (5.01%) | 12 (20.00%) | 14 (23.33%) | 2 (3.33%) | 31 (51.67%) |
| 2 | Marginal farmer | 1 (1.66%) | 7 (11.67%) | 11 (18.33%) | 3 (5.00%) | 22 (36.67%) |
| 3 | Large farmer | 1 (1.66%) | 0 (00.00%) | 2 (3.33%) | 4 (6.67%) | 7 (11.66%) |
| Total | | 5 (8.33%) | 19 (31.67%) | 27 (45.00%) | 9 (15.00%) | 60 (100.00%) |

**Table 6b:** Economic Viability and Price Variations in Poultry Trade (Through middleman - 15 farmers)

| S. No. | Farmer type | Sale price of birds through middleman | | | Total |
|---|---|---|---|---|---|
| | | Rs.300 to Rs.350 | Rs.350 to Rs.400 | More than Rs.400 | |
| 1 | Small farmer | 1 (6.67%) | 4 (26.67%) | 4 (26.66%) | 9 (60.00%) |
| 2 | Marginal farmer | 0 (00.00%) | 1 (6.66%) | 0 (00.00%) | 1 (6.67%) |
| 3 | Large farmer | 0 (0.00%) | 1 (6.67%) | 4 (26.67%) | 5 (33.33%) |
| Total | | 1 (6.67%) | 6 (40.00%) | 8 (53.33%) | 15 (25.00%) |

## Conclusion

Backyard poultry farming, particularly the rearing of Aseel chicken, plays a significant role in enhancing rural livelihoods by providing nutritional and financial benefits. However, several challenges hinder its sustainability, including poor biosecurity measures, low vaccination rates, high mortality due to predation and disease, and inconsistent market access. The study revealed that while a majority of farmers relied on bore well water and direct marketing, they faced difficulties in disease management and mortality control. Addressing these issues through improved vaccination programs, predator management strategies, and organized marketing networks can help maximize the potential of backyard poultry farming. Policymakers and extension services should focus on training farmers on better management practices and facilitating access to reliable veterinary care and structured markets, ensuring a sustainable and profitable future for Aseel chicken farming in rural India.

## Authorship Contribution Statement

Author 1 was responsible for field-level data collection. Author 2 provided guidance to expedite the research process. Author 3 contributed to data compilation and analysis. Author 4 ensured proper guidance and adherence to correct methodologies.

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## Conflict of Interest

Not available

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