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Comparative analysis of constraints in contractual and independent broiler farming in South Karnataka

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Abstract

The poultry sector is one of the fastest-growing segments of Indian agriculture, contributing significantly to nutritional security, employment generation, and rural livelihoods. Broiler farming has witnessed rapid commercialization through the coexistence of contract and independent production systems. However, farmers operating under these systems face different production, financial, and market-related constraints that influence their profitability and sustainability. The present study was conducted to compare the constraints faced by contract and independent broiler farmers in South Karnataka. The study covered four districts, namely Davanagere, Mysuru, Hassan, and Bengaluru Rural. A total of 136 broiler farmers, comprising 80 contract farmers and 56 independent farmers, were selected using a three-stage sampling procedure. Primary data were collected through personal interviews, and Henry Garrett's Ranking Technique was employed to rank the constraints. The results revealed that heavy investment and working capital requirements, disease incidence and mortality, and management-related difficulties were the major constraints faced by contract farmers. In contrast, independent farmers were primarily constrained by market price fluctuations, high chick and feed costs, and high expenditure on medicines and vaccination. The study concluded that contract farming provides protection against market uncertainties but continues to face operational and production challenges, whereas independent farming offers greater managerial autonomy but exposes farmers to higher market and financial risks. Appropriate policy interventions are needed to enhance the sustainability and profitability of both systems.

Keywords: Broiler farming, Contract farming, Independent farming, Constraints, Garrett ranking, South Karnataka

1. Introduction

The poultry sector has emerged as one of the fastest-growing segments of Indian agriculture, making a significant contribution to nutritional security, employment generation, and rural livelihoods. The sector provides a reliable source of high-quality animal protein through the production of eggs and poultry meat and has experienced substantial transformation over the past few decades owing to technological advancements, improved genetics, better disease management practices, and increasing consumer demand.

The poultry sector in India is divided into two main sub-sectors: commercial poultry and backyard poultry. The population of former in the country is 317.07 million, while the latter has the population of 534.74 million aggregating the country's total poultry population to 851.81 million (20th Livestock Census, 2019). India occupies a prominent position in the global poultry industry. According to the Food and Agriculture Organization Corporate Statistical Database (FAOSTAT, 2023), the country ranks second in egg production and fourth in meat production worldwide. Egg production in the country has increased from 78.48 billion numbers in 2014-15 to 149.11 billion numbers in 2024-25, registering a compound annual growth rate (CAGR) of 6.63%. During the same period, the national per capita availability of egg improved from 62 eggs to 106

eggs per annum. The total meat production in the country has also increased from 6.69 million tonnes in 2014-15 to 10.50 million tonnes in 2024-25, of which nearly 50% (5.18 MT) is contributed by the poultry sector alone. The poultry meat production in 2024-25 has shown a growth of 3.10% over the previous year. The share of poultry meat in gross value added (GVA) from livestock sector has increased from Rs 53120 crore to Rs 113031 crore (at constant prices) with a CAGR of 8.41% during 2014-15 to 2023-24. The share of eggs grew with a CAGR of 7.18%, contributing Rs 33470 crore to GVA from livestock sector during 2024-25 (BAHS, 2025). These trends reflect the expanding role of the poultry sector in meeting the increasing demand for affordable animal protein in the country.

Broiler farming constitutes an important component of the poultry industry and has undergone rapid commercialization. The production system has gradually shifted from traditional small-scale operations to more organized forms of production, particularly through the emergence of contract farming arrangements. Under contract farming, integrators generally provide critical inputs such as chicks, feed, medicines, and technical guidance, while farmers contribute housing facilities, labour, and routine management. In contrast, independent farmers operate on their own by procuring inputs and marketing birds in open markets, thereby retaining greater

decision-making autonomy.

Despite the growth of the broiler industry, farmers continue to face several constraints that adversely affect productivity and profitability. The type and intensity of these constraints may vary across production systems. Contract farmers may encounter issues related to capital investment, management practices, and dependence on integrators, whereas independent farmers are often exposed to market price fluctuations, rising input costs, and marketing uncertainties. Understanding these constraints is essential for developing appropriate interventions and policies that address the specific needs of different categories of broiler producers. Against this backdrop, the present study was undertaken to compare the constraints faced by contract and independent broiler farmers in South Karnataka. The findings of the study are expected to provide insights for policymakers, extension agencies, and other stakeholders in designing strategies to improve the efficiency, resilience, and sustainability of broiler production systems.

2. Material and Methods

2.1 Study Area and Sampling Design

The study was conducted in four districts of South Karnataka, namely Davanagere, Mysuru, Hassan, and Bengaluru Rural. These districts were selected for the investigation of constraints faced by contract and independent broiler farmers. A three-stage sampling procedure was adopted for the selection of respondents. In the first stage, the four districts were selected for the study. In the second stage, talukas having a higher concentration of broiler farms were purposively selected based on information obtained from integrated poultry companies, veterinary officers, and other relevant sources. In the third stage, broiler farmers were selected randomly from the identified talukas. A total of 136 broiler farmers were selected for the study, comprising 80 contract farmers and 56 independent farmers. Primary data were collected through personal interviews using a pre-tested structured schedule. The information collected pertained to the constraints encountered by farmers under the two broiler

production systems.

2.2 Henry Garrett's Ranking Technique

The Garrett Ranking Technique was employed to identify and prioritize the constraints perceived by broiler farmers. Respondents were asked to rank the listed constraints according to the severity of the problems they experienced. Since simple ranks do not indicate the magnitude of differences among constraints, the assigned ranks were converted into scores using Garrett's conversion procedure. The percent position of each rank was computed using the following formula proposed by Garrett and Woodworth (1969)^[2]:

$$\text{Per cent position} = 100 (R_{ij} - 0.50) / N_j$$

Where,

- R = Rank given for the i th constraint by the j th respondent
- N = Number of constraints ranked by the j th respondent

The calculated percent positions were then transformed into Garrett scores using the conversion table developed by Garrett and Woodworth (1969)^[2]. The scores obtained for each constraint from all respondents were summed and averaged. Constraints were subsequently arranged in descending order of their mean scores, with the highest mean score indicating the most severe constraint. This technique enables the conversion of ordinal rankings into quantitative measures, thereby facilitating meaningful comparison and prioritization of constraints across respondents.

3. Results and Discussion

The constraints encountered by contract and independent broiler farmers were analysed using Garrett's ranking technique. The results, presented in Tables 1 and 2, indicate significant differences in the severity of constraints across the two production systems.

Table 1: Constraint analysis: Contract farmers (n=80)

Sl.	Constraint	Frequency %	Score	Rank
1	Heavy investment and working capital	52.50	76	1
2	High incidence of diseases and mortality	50.00	74	2
3	Difficulty in following sound management practices	33.75	67	3
4	Inconsistent chick and feed quality	30.00	66	4
5	Limited number of batches per year/ limited chick supply/ delayed supply	37.50	60	5
6	Loan availability and financial support	40.00	58	6
7	Labour availability problem	35.00	53	7
8	Cheating while lifting birds	37.50	51	8
9	Water and electricity problems	32.50	46	9
10	Delay in payment	41.25	43	10
11	Fluctuation in the market prices	38.75	38	11
12	Poor market intelligence inputs	26.25	36	12
13	High medicines and vaccination cost	51.25	31	13
14	High chick and feed cost	42.50	28	14
15	Traders exploitation	56.25	24	15

Among contract farmers, high capital requirement emerged as the most severe constraint with a Garrett score of 76. Although contract farming provides assured marketing and

technical support, farmers are still required to make substantial investments in poultry sheds, equipment, and infrastructure, making capital investment a major concern.

The high incidence of diseases and mortality ranked second (score 74), indicating that biological risks continue to affect production performance despite company support. Difficulty in following sound management practices (score 67) and inconsistent chick and feed quality (score 66) were ranked third and fourth, respectively, suggesting challenges related to flock management and input quality. Limited availability of chicks and fewer production cycles per year was identified as the fifth-ranked constraint (score 60). Financial constraints such as inadequate access to credit and

financial support also remained important, ranking sixth (score 58). Labour shortages, cheating during bird lifting, water and electricity problems, and delays in payment occupied the middle ranks. In contrast, market-related issues such as price fluctuations, high feed and chick costs, and trader exploitation received lower ranks among contract farmers because contractual arrangements generally protect farmers from market uncertainties and provide inputs through the integrator.

Table 2: Constraint analysis: Independent farmers (n=56)

Sl.	Constraint	Frequency %	Score	Rank
1	Fluctuations in the market price	80.35	81	1
2	High chick and feed cost	48.21	79	2
3	High medicines and vaccination cost	48.21	73	3
4	Poor market intelligence inputs	30.35	65	4
5	High incidence of diseases and mortality	55.35	61	5
6	Heavy investment and working capital	53.57	57	6
7	Traders exploitation	46.42	52	7
8	Limited number of batches per year/ limited chick supply/ delayed supply	64.28	50	8
9	Labour problem	66.07	47	9
10	Loan availability and financial support	57.14	42	10
11	Variation in chick and feed quality	44.64	38	11
12	Difficulty in following sound management practices	41.07	36	12
13	Cheating while lifting birds	23.21	33	13
14	Delay in payment	55.35	26	14
15	Water and electricity problems	64.28	22	15

The situation was markedly different among independent farmers. Fluctuation in market prices was identified as the most serious constraint, with a Garrett score of 81. Since independent farmers depend entirely on open markets for both procurement and sale of birds, they are highly vulnerable to price volatility. High chick and feed costs ranked second (score 79), reflecting the substantial contribution of feed and chick expenses to total production costs. High expenditure on medicines and vaccination was the third most important constraint (score 73), highlighting the burden of maintaining flock health without the support of an integrator. Independent farmers also reported poor market intelligence (score 65) and high incidence of diseases and mortality (score 61) as major concerns. Heavy investment requirements and working capital shortages ranked sixth (score 57), indicating the financial burden associated with operating independently. Constraints such as trader exploitation, limited chick supply, labour shortages, and inadequate access to institutional credit occupied the middle positions. Water and electricity problems were ranked least important, with a Garrett score of 22.

Among the constraints identified in contract broiler farming, delay in the supply of inputs and payments was consistent with the findings of Prasad (2005)^[11], Kalamkar (2012)^[6] and Jeevitha *et al.* (2018)^[5]. The constraint of high capital investment was also reported by Manivannan (2012)^[7], Rifky (2016)^[12], and Jeevitha *et al.* (2018)^[5]. In non-contract broiler farming, high costs of chicks, feed, and medicines were found to be major constraints, corroborating the findings of Naidu *et al.* (2002)^[8], Areerat *et al.* (2012)^[1], Kalamkar (2012)^[6] and Jeevitha *et al.* (2018)^[5]. Similarly, price fluctuations and high mortality rates were in line with the observations of Jeevitha *et al.* (2018)^[5]. The

constraints of high investment requirements and inadequate availability of finance were also consistent with the findings of Nath *et al.* (2012)^[9], Onuk *et al.* (2016)^[10], and Jeevitha *et al.* (2018)^[5].

4. Conclusion

A comparison of the two farming systems reveals that the nature of constraints differs substantially. Contract farmers were primarily affected by production and operational issues, particularly capital investment, disease management, and adherence to management practices. In contrast, independent farmers faced a combination of market-related and financial constraints, including price fluctuations, rising input costs, and limited market information. The relatively lower ranking of market-related constraints among contract farmers demonstrates the role of contractual arrangements in reducing market risk. However, contract farmers remained dependent on integrators for inputs, technical guidance, and production scheduling, which created a different set of operational challenges. Overall, the findings suggest that contract farming provides a degree of protection against market uncertainties but does not eliminate production-related constraints. Independent farmers, while enjoying greater managerial autonomy, are exposed to higher market and financial risks. These differences underline the need for tailored policy interventions, including improved access to affordable credit, disease management support, reliable input supply systems, and strengthened market information services to enhance the sustainability and profitability of both broiler production systems.

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