

AN ANALYSIS OF MARKET RISKS AND FARMER VULNERABILITY IN DUCK FARMING IN KERALA WITH SPECIAL REFERENCE TO KOTTAYAM DISTRICT

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Abstract: Duck farming in Kerala plays a vital role in supporting the state's agribusiness sector. However, duck farmers remain highly vulnerable to market risks which threaten the profitability of the sector. This study aims to analyze the major market risks they face and to propose policy strategies that can reduce their vulnerability. The primary data collected from 50 duck farmers through structured interviews. The findings of the study revealed that limited diversification, dependence on middlemen, inadequate value addition, lower adoption of technology, and weak cooperative structures are key risks constraining the growth of the sector. To address these challenges, the study recommends strengthening cooperatives, promoting value-added products, enhancing farmers' digital literacy, and encouraging the adoption of modern technologies.

Keywords: Duck Farmers, Duck Farming, Farmer Vulnerability, Market Risks.

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Introduction

The growth of the population has intensified the demand for food products. As the consumer base expands, the pressure on the supply side of the agriculture sector increases correspondingly. This trend forced producers to scale up their operations to meet increased market expectations. This high consumer demand compelled farmers to set high production targets. But many small and marginal farmers continue to face consistent market challenges which prevent them from reaching the optimal production levels.

Even though traditional agriculture faces hurdles, modern business structures can transform the sector into a profitable enterprise. In many developing economies, concerns over food security are growing but their grain reserves continue to shrink. In these countries, poultry farming has emerged as a practical solution. Its low input requirement and quick turnaround makes it a sustainable option for boosting food production and supporting rural livelihoods.

In recent years, poultry farming has grown into one of the most vibrant areas within India's livestock sector. The sector's growth and rising consumer demand makes it more relevant in both economic and social terms. Studies show that the industry has seen

a remarkable growth in both egg and meat production. In India, millions of farmers now depend on poultry farming for nutrition and consider it as a source of steady income. At the same time, traditional forms like duck farming continue to face challenges in specific regions which make the farmers vulnerable.

Duck farming is an important part of the rural agricultural economy of India especially in water-rich States like Kerala. Ducks are hardy, productive, and well-suited to various environmental conditions. Duck farming plays an important role in India's poultry sector. The sector produces around 6-7% of the country's total eggs and according to the 20th Livestock Census (2019), ducks make up 4% of India's overall poultry population. However, the role of indigenous duck breeds in supporting resource-poor farmers can't be neglected. Because of its resilient nature farmers found it appealing to areas where conventional livestock rearing is difficult or less profitable. In the opinion of Veeramani et al., these breeds play a crucial role in sustaining rural livelihoods because they can survive and produce well even with minimal inputs.

The success of every enterprise depends on its marketing techniques. The agricultural sector is no different. According to Chakki (2015), agricultural marketing connotes a series of activities involved in the moving of goods i.e. farm inputs from the

point of production to the point of consumption. This definition says that an efficient marketing system is essential for profitability of a business enterprise. Agricultural marketing brings producers and consumers together through a series of activities and thus becomes an essential element of the economy (Chatterjee, 2024). Agricultural marketing is more than just selling farm produce. It includes the entire process such as producing and processing to packaging, storage, transportation and distribution. So, marketing is a strategic tool that shapes the supply and the demand sides of the agricultural economy. An efficient marketing system stimulates economic growth by supporting agro-based industries and creating job opportunities for farmers.

However, there are some market risks that limit the profitability of farmers in the long-run. Market risk is the uncertainty and potential financial losses that farmers face due to various reasons such as price fluctuations, unstable demand, dependence on middlemen and unfavourable market conditions. For marginal and small farmers, the impact of these risks on their profitability is even worse. In regions like Kerala, duck farming is one of the main sources of income for rural farmers and an inefficient marketing system will make the farmers more vulnerable. So strengthening the market system will uplift the living standards of farmers, promote rural development and make the sector more resilient and sustainable.

Statement of the Problem

In Kerala, duck farming plays an important part in the rural agricultural economy, providing both primary and supplementary income for many small and marginal farmers. The sector also supports nutritional security and creates employment opportunities especially in areas where conventional farming is limited by environmental and economic constraints. Despite its importance, the sector faces a number of market risks which make the farmers vulnerable. In this context, it is crucial to analyse market risks faced by duck farmers in Kerala and develop strategies that can strengthen the sector in the long term.

Objectives

The main objectives of the study are:

- 1. To analyze the major market risks faced by duck farmers in Kottayam district of Kerala.
- 2. To recommend policy measures to reduce farmer vulnerability and strengthen the sustainability of duck farming.

Methodology

The study was conducted in Kottayam district and using a random sampling method, 50 duck farmers were selected as respondents. Data for the study were drawn from both primary and secondary sources. Primary data were collected through a structured interview schedule and secondary data were obtained from government reports and relevant academic literature.

Results and Discussion

Market Risks Faced By Duck Farmers

Limited Product Diversification and Income Instability

Product diversification plays an important role in enhancing the profitability of agricultural enterprises. In duck farming, offering multiple products reduces the risks associated with reliance on a

single product. The following section categorizes duck farmers based on the type of products they offer.

Table 1: Types of Duck Products Offer

Types of Duck Products Offer	Percentage of Respondents
Only Meat	42
Only Egg	18
Both Meat and Egg	40

Source: Primary Data

The findings reveal that 40% of duck farmers are engaged in the sale of both meat and eggs. This shows their willingness to diversify their income sources. However 42% of respondents market duck eggs exclusively which is possibly linked to regional culinary preferences. A smaller share (18%) sell only duck meat, which may point to the availability of targeted niche markets. Even though some level of diversification exists in the sector, many farmers remain economically vulnerable due to product concentration.

Dependence on Middlemen in Market Access

Market access and the choice of distribution channels are important determinants of profitability of duck farming. The following table shows the sales channels employed by duck farmers in the study area. The table indicates whether they market their products directly to consumers, through intermediaries, or via a combination of both.

Table 2 : Distribution Channels

Distribution Channels	Percentage of Respondents
Direct to Consumers	36
Through Middlemen	32
Combination of Both Consumers and Middlemen	32

Source: Primary Data

The data indicates that 36% of duck farmers engage in direct sales to consumers, indicating the importance of maintaining personal customer relationships. 32% depend solely on middlemen, possibly due to limited market access and convenience. Notably, 32% of respondents reported using a hybrid strategy selling directly to consumers while also supplying to middlemen. This mixed approach indicates an adaptive marketing pattern that aims to boost market reach and stabilize income. But the dependence on middlemen remains a market risk in this sector.

Limited Value Addition Practices

To examine the value addition activities in duck farming, they were asked about the specific practices they follow. The focus was on three common types of value addition: selling dressed meat, making processed duck products, and using packaging or branding. The table below shows the value addition methods adopted by duck farmers in the study area.

Table 3 : Value Addition Practices

Value Addition Practices	Percentage of Responses
Dressed Meat	100
Processed Food	0
Packaging and Branding	0

Source: Primary Data

The data indicates that all respondents (100%) add value through the production of dressed meat. It is an activity that involves slaughtering and basic processing such as cleaning and defeathering prior to sale. However, none of the surveyed farmers reported engagement in advanced value addition techniques, such as producing processed duck items (e.g., pickled products or sausages) or implementing packaging and branding strategies. This shows the unexplored potential of the duck farming sector which could make them more profitable in future. The absence of higher-level value addition leaves the farmers vulnerable to price fluctuations.

Limited Technological Adoption

The adoption of modern technologies, such as brooding equipment, biogas units, improved infrastructure and artificial water facilities can influence the efficiency of duck farming.

The results show that only 36% of the duck farmers use some forms of modern technology in their farming practices. These technologies include brooding facilities, biogas units for waste management, and housing and artificial water facilities. The majority (64%) continue to rely on traditional methods, which can limit the efficiency and sustainability of the sector. The use of technology can improve product quality and reduce production costs to an extent. But limited adoption of technology exposes farmers to significant market risks which reduced their profitability.

Limited Adoption of Modern Distribution Channels

The adoption of modern distribution channels by duck farmers shows a shift toward digital engagement in agricultural marketing. The results of the study shows that 66% of the respondents are using online platforms or WhatsApp groups to sell their duck products. This trend suggests that a section of farmers is beginning to recognize the role of digital tools in expanding market reach.

However, 34% of the respondents still do not use any modern distribution mechanisms which means they are following conventional sales practices. This digital divide may be a sign of limited access to technology or inadequate digital literacy and those that don't adopt technology may remain vulnerable to market uncertainties.

Weak Functioning of Cooperatives

Co-operatives are formed to strengthen farmers' collective bargaining power and to ensure access to markets. In the study, 72% of respondents reported being members of co-operatives, while 28% indicated they were not affiliated with any such organization.

However, further inquiry revealed that most of the members viewed their involvement as partial. Because the farmers felt that

the working of the unions was not effective in addressing their problems. This reduces the potential benefits of collective action and leaves farmers to rely on their own efforts to manage market risks.

Seasonal Volatility in Market Demand

Seasonal demand fluctuations influence sales volume and profit of farmers. In the study, only 22% of the farmers reported experiencing seasonal demand volatility for duck products during festivals such as Christmas and Easter. These farmers adjust their sales strategies to match the increases in demand and prices. However 78% farmers reported that they did not face seasonal variations in demand. Even though a minority of farmers benefit from seasonal opportunities, most continue to operate within relatively stable demand cycles.

Policy Recommendations to Reduce Farmer Vulnerability and Strengthen the Sustainability of Duck Farming

- Provide targeted training sessions and financial incentives to duck farmers to reduce the negative impact of market uncertainties. Moreover, encourage farmers to adopt integrated systems that combine both meat and egg production.
- Distribute quality breeds to farmers to enhance the production volume and provide guidance on modern duck management practices to maximize productivity.
- Encourage the formation of farmer groups and cooperatives to reduce presence of middlemen. Additionally establish farmer-led marketing hubs or groups to ensure direct access to consumers.
- Provide training and subsidies for small-scale processing units and introduce branding and packaging support schemes to increase sales of duck products.
- Implement subsidy programs to farmers for adopting modern equipment such as brooders, housing, waste management facilities.
- Organize training programs to equip duck farmers with digital skills, including the use of smartphones, online payments, and e-commerce platforms. This will enable them to expand their customer base and adopt more efficient marketing practices.
- Create digital platforms for duck farmers to connect them directly with consumers, restaurants, and bulk buyers.
- Establish cold storage and preservation units to store duck products to improve farmers' income. Moreover, organize cooperative-based marketing methods during festive seasons.

Conclusion

Duck farming is a vital source of livelihood in Kerala for small and marginal farmers. However farmers face several market-related risks that restrict their income growth and leave them economically vulnerable. For duck farming to become more sustainable, the government should implement targeted policies that transform it into a stronger, more resilient agribusiness model, securing both farmer livelihoods and the future of poultry in Kerala.

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