Calvary Journal of Business and Economics
Vol. 2, No. 2, 2025: 181-192

Chicken Production and Marketing Chain Analysis in Kampong Ror District, Svay Rieng Province

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A R T I C L E I N F O

Kata Kunci: Poultry, Chicken Production, Marketing Chain, Economic Efficiency

Received : 5 January
Revised : 10 February
Accepted: 19 March

A B S T R A K

Poultry production has the potential to increase employment opportunities, ensure food security, promote food safety, contribute to economic growth, and reduce poverty in Cambodia. This study analyzed the chicken production and marketing chain in Kampong Ror district, Svay Rieng province, Cambodia, focusing on two communes: Prey Thum and Thnoat. A total of 188 samples were collected from eight villages using Yamane's formula. The primary objective was to assess the economic impact of chicken production on farmers, middlemen, wholesalers, and small sellers. Results indicate that farmers in Thnoat Commune had higher average cross income and profit per chicken production cycle compared to those in Prey Thum Commune. Middlemen in both communes earned similar profits, but their cross income varied slightly. Wholesalers in Thnoat Commune had higher average cross income and profit per sale than those in Prey Thum Commune. Small sellers in Thnoat Commune also had higher average cross income. In terms of economic efficiency, farmers demonstrated the highest efficiency, followed by small sellers, middlemen, and wholesalers. While farmers had the most significant economic impact, their profit margins were relatively low compared to wholesalers. The study highlights the importance of all participants in the chicken production chain for enhancing local and national economies

PENDAHULUAN

Cambodia's economy is heavily reliant on agriculture. To address poverty and promote development, various organizations, including the government's Ministry of Agriculture, Forestry, and Fisheries, have been actively working to support the agricultural sector (MAFF, 2016). These efforts have led to the formation of self-managed agricultural communities, which focus on creating job opportunities, expanding businesses, increasing production, and finding new markets for agricultural products (Kim, 2009). Supporting livelihood development is crucial for empowering the poor, particularly those in rural communities (Serey, 2018). Strategies vary widely, encompassing skills training, infrastructure improvements, investment assistance, and credit and marketing programs (Wai, 2012). A market emerges when supply and demand converge at a specific time, facilitating the exchange of commodities. Agricultural markets focus on agricultural products, including chickens (Huot, 2007). Unlike perishable crops, chickens can be kept alive until needed, reducing storage challenges. However, the gap between farm gate prices and market prices can significantly hinder farmers' livelihoods in rural areas. This disparity is often attributed to information asymmetry and the long market chain, which allows traders to capture a larger share of profits (Vet, 2016).

TINJAUAN PUSTAKA

Svay Rieng province, known for its agricultural production, had 797,335 poultry heads and 18,429 poultry-raising households in 2009 (Agriculture Summary Report 2008-2009). To ensure the sustainability of chicken production and mitigate market risks, understanding the dynamics of the chicken market is essential (MAFF, 2015). Chicken is a highly sought-after agricultural product with a growing market demand. Many rural families in Cambodia engage in chicken farming as a means of both income generation and food security. Traditional farming methods are common but adopting modern production techniques can significantly enhance efficiency and profitability (Ministry of Environment, 2010). Kampong Ror district in Svay Rieng province benefits from the support of organizations and the provincial Department of Agriculture, Forestry, and Fisheries, which provide training in agricultural techniques (Ouk, 2002). This has empowered farmers to improve their skills and confidence in raising chickens. The growing demand for chicken and the development of the poultry market have prompted a study on ' Chicken production and marketing chain analysis in Kampong Ror district, Svay Rieng province.' This research aims to contribute to the economic development of the region by providing valuable insights into the poultry industry.

This study aims to study the chicken production chain, to understand the marketing chain of chicken and to analyze the SWOT of chicken production.

METODOLOGI

This study focused on eight villages within two communes in Kampong Ror district, Svay Rieng province. Four villages (Preah Bak Kor, Prey Sakum, Prey Thom, and Krous) were located in Prey Thom commune, while the other four (Kandal, Thom, Prey Preus, and Troak) were in Tnaot commune. A total of 188 samples were analyzed. The research spanned four months, with one month dedicated to surveys and face-to-face interviews with farmers, traders, wholesalers, retailers, and consumers. The remaining three months were used for data organization, analysis, interpretation, and dissertation compilation. Survey data, collected through well-designed questionnaires administered to farmers in target areas, is a valuable source of information. These surveys employ a mix of open and closed-ended questions to gather insights that align with the research objectives.

Qualitative data, which captures the views, perceptions, and ideas of interviewees, is analyzed through techniques like SWOT analysis. Quantitative data, such as labor force, production costs, output, and revenue, provides numerical insights into the production cycle.

Table 1. Number of Samples (Farmers Who Raised Chicken) in Each Village

District	Commune	District	Number of farmers raising chicken	Samples by village	Percentage
Kampong Ror	Prey Thom	Preah Bak Kor	38	20	10.62%
		Prey Sakum	35	19	10.11%
		Prey Thom	50	26	13.83%
		Krous	56	29	15.43%
		Kandal	37	19	10.11%
	Thnaot	Thom	45	24	12.77%
		Prey Preus	54	28	14.90%
		Troak	43	23	12.23%
Total			**358**	**188**	**100%**

Table 2. Number of Respndents
(Middleman, Wholesalers, Retailers, Consumers)

Commune	District	Retailers	Wholesalers	Middlemen	Consumers
Prey Thom	Preah Bak Kor	1	0	1	3
	Prey Sakum	1	0	2	5
	Prey Thom	0	0	1	4
	Krous	1	1	1	2
	Kandal	0	0	1	4
Thnaot	Thom	1	1	2	3
	Prey Preus	1	0	1	6
	Troak	0	0	0	3
Total		**5**	**2**	**9**	**30**

HASIL DAN PEMBAHASAN

Chicken Production Chain

Chickens are a ubiquitous food source, found in homes and markets across the globe. In Cambodia, naturally raised chickens, often referred to as "field chickens," are particularly popular due to their delicious taste and chemical-free nature. These chickens are considered healthier and more desirable by consumers (Nget, 2004). However, other types of chickens, raised on commercial diets, are also available in the market. Despite being less expensive to raise, these chickens are less favored by consumers. As a result, most farmers in Cambodia continue to raise chickens in a more natural, traditional way, even though it is more costly (Chhum, 2017).

Among the eight villages in Kampong Ror district, 171 families, or 91%, own more than three hens, indicating a significant presence of poultry farming. Prey Thom commune has a higher proportion of chicken-raising households (50.90%) compared to Tnaot commune (49.10%). This difference may be attributed to geographical factors and individual preferences. Conversely, 17 families, or 9%, own fewer than three hens. Tnaot commune has a higher percentage of such households (58.82%) compared to Prey Thom commune (41.18%). This disparity may be due to geographical factors, individual preferences, and technical considerations.

Land availability is a crucial factor in chicken farming. Farmers who own sufficient land can construct cages or allow their chickens to free-range. However, those with limited land must invest more time and effort in caring for their chickens, including providing adequate food and shelter. In the two communes of Kampong Ror district, 173 families, or 92.02%, possess adequate land for chicken farming. Tnaot commune has a slightly higher proportion of such families (51%) compared to Prey Thom commune (49%). This difference may be attributed to geographical factors, technological advancements, and resource availability. Conversely, 15 families, or 7.98%, lack sufficient land for chicken farming. Tnaot commune has a higher proportion of these families (66.67%) compared to Prey Thom commune (33.33%). This disparity may also be due to geographical factors, technological limitations, and resource constraints.

Chicken farming is a common practice in these two communes. However, the methods employed vary among households. A total of 36 families, or 21.30%, raise chickens exclusively in cages. Prey Thom commune has a higher proportion of cage-based chicken farmers (61.11%) compared to Tnaot commune (38.89%). This difference may be attributed to geographical factors, technological advancements, and resource availability. Another 65 families, or 34.60%, employ a mixed approach, combining cage and free-range systems. Prey Thom commune has a higher proportion of farmers using this mixed approach (52.31%) compared to Tnaot commune (47.69%). Finally, 87 families, or 46.30%, raise chickens exclusively in free-range systems. Tnaot commune has a higher proportion of free-range chicken farmers (56.32%) compared to Prey Thom commune (43.68%). Again, these differences may be due to geographical factors, technological advancements, and resource availability.

Regarding chicken feeding practices, a significant portion of farmers (39.36%) in the two communes feed their chickens based on age-specific dietary needs. Prey Thom commune has a higher proportion of farmers following this practice (59.46%) compared to Tnaot commune (40.54%). This difference may be attributed to geographical factors, technological advancements, and resource availability. Conversely, 60.64% of farmers do not differentiate feeding practices based on age. Tnaot commune has a higher proportion of farmers following this practice (56%) compared to Prey Thom commune (44%). Again, these differences may be due to geographical factors, technological advancements, and resource availability.

The duration of the chicken rearing cycle significantly impacts production efficiency and profitability. Shorter rearing periods, such as three or four months, allow for multiple production cycles per year and lower depreciation costs for housing and equipment. These shorter cycles are typically achieved through advanced feeding and management techniques. In the study area, 21.17% of farmers raise chickens for three months, while 31.91% raise them for four months. These shorter cycles enable farmers to maximize production and income. Conversely, longer rearing periods of five or six months limit the number of production cycles per year and increase depreciation costs. These longer cycles are often associated with traditional farming practices. In the study area, 27.13% of farmers raise chickens for five months, and 29.79% raise them for six months. While these longer cycles may yield larger birds, they compromise overall production efficiency and profitability.

Among the 158 farmers in the two communes, 84% raise local chicken breeds. Prey Thom commune has a slightly higher proportion of local chicken farmers (50.63%) compared to Tnaot commune (49.37%). This difference may be attributed to geographical factors, technological advancements, and resource availability. A smaller proportion of farmers (6.40%) raise imported chicken breeds. Prey Thom commune has a higher proportion of farmers raising imported breeds (58.33%) compared to Tnaot commune (41.67%). This difference may be due to geographical factors and access to resources. Finally, 9.60% of farmers raise chickens from various institutions. Tnaot commune has a higher proportion of farmers sourcing chickens from institutions (61.11%) compared to

Prey Thom commune (38.89%). This difference may be due to geographical location, access to technology, and farmers' preferences.

In these two communes, 36% of farmers, or 68 families, raise chickens using modern techniques. Tnaot commune has a higher proportion of technically-oriented farmers (52.94%) compared to Prey Thom commune (47.06%). This difference may be due to geographical factors, technical knowledge, training opportunities, and resource availability. Conversely, 64% of farmers, or 120 families, do not follow modern techniques. Prey Thom commune has a slightly higher proportion of non-technical farmers (52%) compared to Tnaot commune (48%). This difference may be attributed to a lack of confidence in new techniques, limited training opportunities, and resource constraints.

In these two communes, 95% of chicken farmers, or 178 families, do not rely on loans to finance their operations. Tnaot commune has a slightly higher proportion of non-loan farmers (51.12%) compared to Prey Thom commune (48.88%). This difference may be attributed to differences in financial resources and access to credit. Conversely, 5% of farmers, or 10 families, utilize loans to support their chicken farming activities. Prey Thom commune has a higher proportion of loan-dependent farmers (70%) compared to Tnaot commune (30%). This difference may be due to differences in financial needs and access to credit opportunities.

In these two communes, 162 families, or 86%, sell chickens when they reach maturity. Tnaot commune has a slightly higher proportion of such farmers (51.85%) compared to Prey Thom commune (48.15%). This difference may be attributed to factors such as household needs and resource availability. A smaller proportion of farmers, 9%, sell chickens only when they need immediate cash. Prey Thom commune has a higher proportion of such farmers (55.56%) compared to Tnaot commune (44.44%). This difference may be due to financial constraints and income diversification strategies. Finally, 17 families, or 9%, sell chicken on a continuous basis. Prey Thom commune has a higher proportion of such farmers (64.71%) compared to Tnaot commune (35.29%). This difference may be attributed to factors such as market access, production capacity, and household needs.

Table 3. The Responsibilities of Farm Members in Chicken Raising

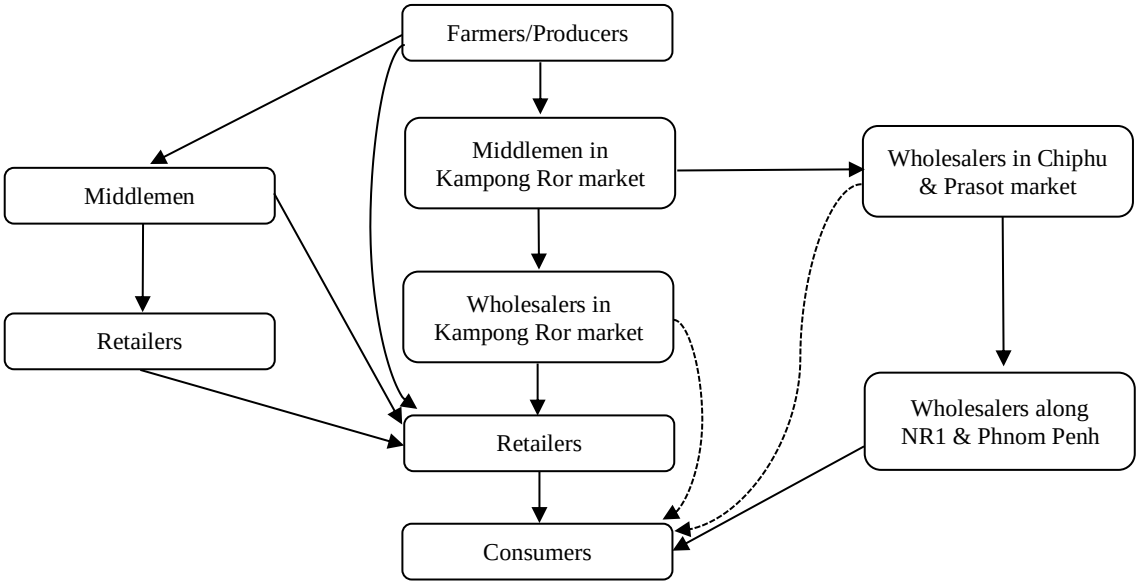
Commune	Responsibilities	Woman	Man	Children	Whole family
Prey Thom	Building a cage	20	46	0	28
	Cleaning a cage	61	20	0	13
	Feeding and watering	45	23	0	26
	Curing	20	19	0	55
	Deciding to sell	53	21	0	20
	Deciding to eat	60	21	0	13
	Receiving technique	63	31	0	0
Thnaot	Building a cage	6	56	0	32
	Cleaning a cage	43	15	0	36
	Feeding and watering	35	19	0	40

Curing	34	13	0	47
Deciding to sell	45	13	0	36
Deciding to eat	50	27	0	17
Receiving technique	71	23	0	0

Chicken Marketing Chain

In Kampong Ror district, most farmers sell their chickens to local brokers who traverse the villages (Yok, 2005). These brokers then sell the chickens to traders within Kampong Ror or to traders from outside the district. Subsequently, these traders distribute chickens to wholesalers and retailers. Additionally, some farmers sell their chickens directly to consumers.

The marketing channels for chicken products vary among farmers. The primary markets for chickens from Kampong Ror district include the local Kampong Ror market and larger markets in Svay Rieng province, such as Svay Rieng City, Chiphu Market, and Prasot Market. Furthermore, some chickens are even sold to resellers in Phnom Penh.



Graph 1. The Chicken Marketing Chain in Kampong Ror District

The Sale of Chicken from Farmers

According to the study, the primary method of chicken sales in both communes involves selling to brokers. This method was used by 81.91% of farmers (154 families). A smaller proportion of farmers sold directly to consumers (7.45%), at local markets (6.91%), or to neighbors (3.72%). Tnaot commune had a higher percentage of farmers selling to brokers (88%) compared to Prey Thom commune (77%). The selling price of chickens varied based on factors such as weight, market, and buyer. For chickens weighing 350 kg or more, the average selling price was 12,690 Riel per kilogram. Farmers in Tnaot commune received a slightly higher price (12,930 Riel) compared to those in Prey Thom commune (12,450 Riel). For chickens weighing 45 kg or more, the average

selling price was 14,350 Riel per kilogram. Farmers in Prey Thom commune received a slightly higher price (14,500 Riel) compared to those in Tnaot commune (14,200 Riel). For chickens sold to neighbors, weighing 28 kg or more, the average price was 14,100 Riel per kilogram. Farmers in Prey Thom commune received a slightly higher price (14,150 Riel) compared to those in Tnaot commune (14,050 Riel). Finally, for chickens weighing 56 kg or more, the average selling price was 13,725 Riel per kilogram. Farmers in Prey Thom commune received a slightly higher price (13,950 Riel) compared to those in Tnaot commune (13,500 Riel). These price differences may be attributed to factors such as market demand, buyer preferences, and local market conditions.

The Sale of Chicken from Middlemen

The distribution of chicken sales channels varies between the two communes. In Prey Thom commune, a higher percentage of traders (10%) sell to other traders compared to Tnaot commune (4%). This difference may be attributed to factors such as market dynamics, buyer preferences, and negotiation power. Regarding sales to wholesalers, Tnaot commune has a higher percentage of traders (28%) compared to Prey Thom commune (1%). This difference may be due to the availability of larger-scale buyers in Tnaot commune. However, Prey Thom commune has a higher percentage of traders selling to retailers (52%) and consumers (10%) compared to Tnaot commune (4% and 1%, respectively). This may be due to a stronger local market and a higher demand for direct-to-consumer sales in Prey Thom commune. Regarding pricing, the average selling price varies depending on the buyer and the commune. Generally, traders in Tnaot commune tend to receive slightly higher prices for their chickens compared to those in Prey Thom commune. This may be due to factors such as negotiation skills, market demand, and product quality.

The Sale of Chicken from Wholesalers

Wholesalers in Prey Thom commune sell a lower percentage of their chickens to vendors on National Road 1 (25%) compared to Tnaot commune (27%). Similarly, they sell a lower percentage to retailers (31%) compared to Tnaot commune (34%). However, they sell a higher percentage of their chickens directly to consumers (44%) compared to Tnaot commune (39%). The average selling price of chickens to vendors on National Road 1 is 15,100 Riel per kilogram. Wholesalers in Tnaot commune tend to charge slightly higher prices (15,150 Riel) compared to those in Prey Thom commune (15,050 Riel). For chickens sold to retailers, the average price is 14,975 Riel per kilogram. Wholesalers in Tnaot commune charge slightly higher prices (15,000 Riel) compared to those in Prey Thom commune (14,950 Riel). Finally, for chickens sold directly to consumers, the average price is 15,300 Riel per kilogram. Wholesalers in Prey Thom commune charge significantly higher prices (15,550 Riel) compared to those in Tnaot commune (15,050 Riel). This difference may be due to factors such as market demand, negotiation power, and product quality.

The Sale of Chicken from Retailers

Retailers in Prey Thom commune have a higher tendency to sell to the same retailers (23%) compared to Tnaot commune (20%). This difference may be attributed to local market dynamics and established relationships between retailers. However, retailers in Tnaot commune are more likely to sell directly to consumers (80%) compared to those in Prey Thom commune (77%). This suggests a higher demand for direct-to-consumer sales in Tnaot commune. Regarding pricing, retailers in both communes charge similar prices for chickens sold to other retailers (approximately 16,125 Riel per kilogram). However, retailers in Tnaot commune tend to charge slightly higher prices for chickens sold to consumers (17,250 Riel per kilogram) compared to those in Prey Thom commune (17,000 Riel per kilogram). These price differences may be influenced by factors such as market demand, competition, and consumer preferences.

The Purchases and Consumer Preferences

A survey of 10 consumers in each commune revealed that the majority (79.50%) prefer to purchase ready-to-cook chickens. The remaining 20.50% opt for live chickens. There is no significant difference between the two communes in terms of consumer preferences. In Prey Thom commune, consumers purchase chickens averaging 1.32 kg at a price of 18,000 Riel per kilogram, totaling 23,760 Riel per chicken. In Tnaot commune, consumers purchase chickens averaging 1.25 kg at a price of 18,500 Riel per kilogram, totaling 23,125 Riel per chicken. For those who purchase live chickens, the average weight is 1.50 kg in both communes. The price per kilogram is 17,500 Riel, resulting in a total cost of 26,250 Riel per chicken. The similarity in consumer preferences and purchasing patterns between the two communes can be attributed to factors such as market prices, cultural practices, and household needs.

A survey of 10 chicken consumers in each commune revealed that the majority (79.5%) prefer chicken. A smaller proportion (20.5%) have a neutral preference towards chicken. No respondents expressed a dislike for chicken. Tnaot commune had a slightly higher proportion of chicken enthusiasts (80%) compared to Prey Thom commune (70%). Conversely, Prey Thom commune had a higher proportion of consumers with a neutral preference (30%) compared to Tnaot commune (20%). These differences may be attributed to individual preferences and cultural factors.

Farmer / Producer Economic Efficiency

The economic feasibility of chicken farming depends on the balance between costs and income. In the study area, farmers incur both fixed and variable costs. Fixed costs, such as investments in infrastructure and breeding stock, were slightly higher in Tnaot commune (110,250.10 Riel) compared to Prey Thom commune (108,350.50 Riel). Variable costs, including feed, medication, and labor, were also higher in Tnaot commune (171,550.30 Riel) compared to Prey Thom commune (163,650.80 Riel). The average total cost per production cycle was higher in Tnaot commune (281,800.40 Riel) compared to Prey Thom commune (272,001.30 Riel). However, the average gross income was also higher in Tnaot commune (510,500.50 Riel) compared to Prey Thom commune (481,540.80 Riel).

As a result, the net profit per production cycle was higher in Tnaot commune (228,700.10 Riel) compared to Prey Thom commune (209,539.5 Riel). This difference in profitability can be attributed to factors such as production scale, efficiency, and market prices. In terms of economic efficiency, Tnaot commune had a slightly higher efficiency ratio (1.81) compared to Prey Thom commune (1.77). This indicates that for every Riel invested, Tnaot commune farmers earned slightly more.

SWOT Analysis of Chicken Production

- **Strengths**

The target area provides ideal conditions for chicken farming. With ample land, a suitable climate, and sufficient water resources, farmers can easily raise chickens. The local breed of chicken is highly sought-after in the market, ensuring a ready market for farmers' products.

Furthermore, chicken farming offers numerous benefits to farmers. It can be a significant source of income, helping to support families financially. Additionally, chickens provide a valuable source of protein for household consumption.

The low cost of entry and high market demand make chicken farming an attractive livelihood option. Moreover, organizations like Light of Hope are actively supporting farmers in this sector, providing valuable training and resources.

- **Weaknesses**

Chicken diseases can spread rapidly among flocks, leading to significant losses for farmers. Timely intervention is crucial to prevent outbreaks and minimize economic damage. In some regions, free-range chicken farming practices can exacerbate the spread of diseases. Furthermore, fluctuations in market demand and prices can create challenges for farmers, especially during periods of oversupply or disease outbreaks.

- **Opportunities**

Chicken products consistently enjoy strong market demand. Consumers favor naturally raised, farm-fresh chickens. Chicken products can be stored for relatively long periods, facilitating distribution and sales.

- **Threats**

Losses can occur during both production and marketing stages. Chicken prices can vary significantly throughout the year. Initial investments are required to purchase breeding stock and maintain operations during off-seasons. Wholesalers face significant costs, which can impact their profit margins.

KESIMPULAN DAN REKOMENDASI

The chicken farming industry in the study area is primarily characterized by small-scale, family-based operations. While some farmers have adopted more commercialized approaches, the majority still rely on traditional methods. Local chicken breeds are highly sought-after in the market, and farmers are able to sell their products directly to brokers, local markets, or even to consumers. The supply chain for chicken products is relatively simple. Farmers sell their chickens to local brokers, who then distribute them to wholesalers or directly to retailers. Some farmers may also sell directly to consumers. The primary markets for these chickens include local markets, regional markets like Svay Rieng, and even the capital city, Phnom Penh. While the chicken industry faces challenges such as disease outbreaks and fluctuating market prices, it remains a viable livelihood option for many farmers. The support of NGOs and government agencies, through training and financial assistance, has played a crucial role in improving production practices and market access. However, challenges such as a lack of technical knowledge, limited access to capital, and resistance to adopting new technologies persist among some farmers. To further develop the chicken industry, it is essential to continue providing training and support to farmers, particularly in areas such as disease prevention, feed management, and marketing. Additionally, efforts to improve market access and promote sustainable farming practices can help ensure the long-term sustainability of the industry.

To further enhance the poultry farming industry in Kampong Ror district and improve the livelihoods of farmers and traders, the following recommendations are proposed:

1. Continuous Learning and Adaptation: Farmers should actively participate in training programs and workshops conducted by NGOs and government agencies. This will help them acquire modern farming techniques, disease prevention strategies, and market trends.
2. Modern Farming Practices: Farmers should adopt modern farming practices, such as cage-based rearing, to improve efficiency, reduce mortality rates, and enhance product quality.
3. Market Research and Price Monitoring: Farmers should stay informed about market trends and price fluctuations. By monitoring market prices, they can make informed decisions about when to sell their chickens to maximize profits.
4. Government Support and Extension Services: Government agencies, particularly the Ministry of Agriculture, Forestry, and Fisheries, should continue to provide technical assistance, training, and financial support to farmers. Extension workers at the provincial, district, and commune levels should play a crucial role in providing on-the-ground support and guidance.
5. Financial Access: Access to affordable credit can help farmers expand their operations and invest in modern farming practices. Financial institutions and NGOs should consider providing tailored financial products to support the needs of small-scale farmers.

6. Collaboration and Knowledge Sharing: Farmers should actively participate in farmer groups and cooperatives to share experiences, knowledge, and resources. This can help them collectively address challenges and improve their livelihoods.

By implementing these recommendations, farmers in Kampong Ror district can enhance their poultry farming practices, increase their income, and contribute to the overall development of the local economy.

UCAPAN TERIMA KASIH

I would like to express my sincere gratitude to Associate Professor Dr. Serey Mardy and Dr. Hong Chhun, researchers at Svay Rieng University for his invaluable guidance and insightful comments throughout my research.

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