

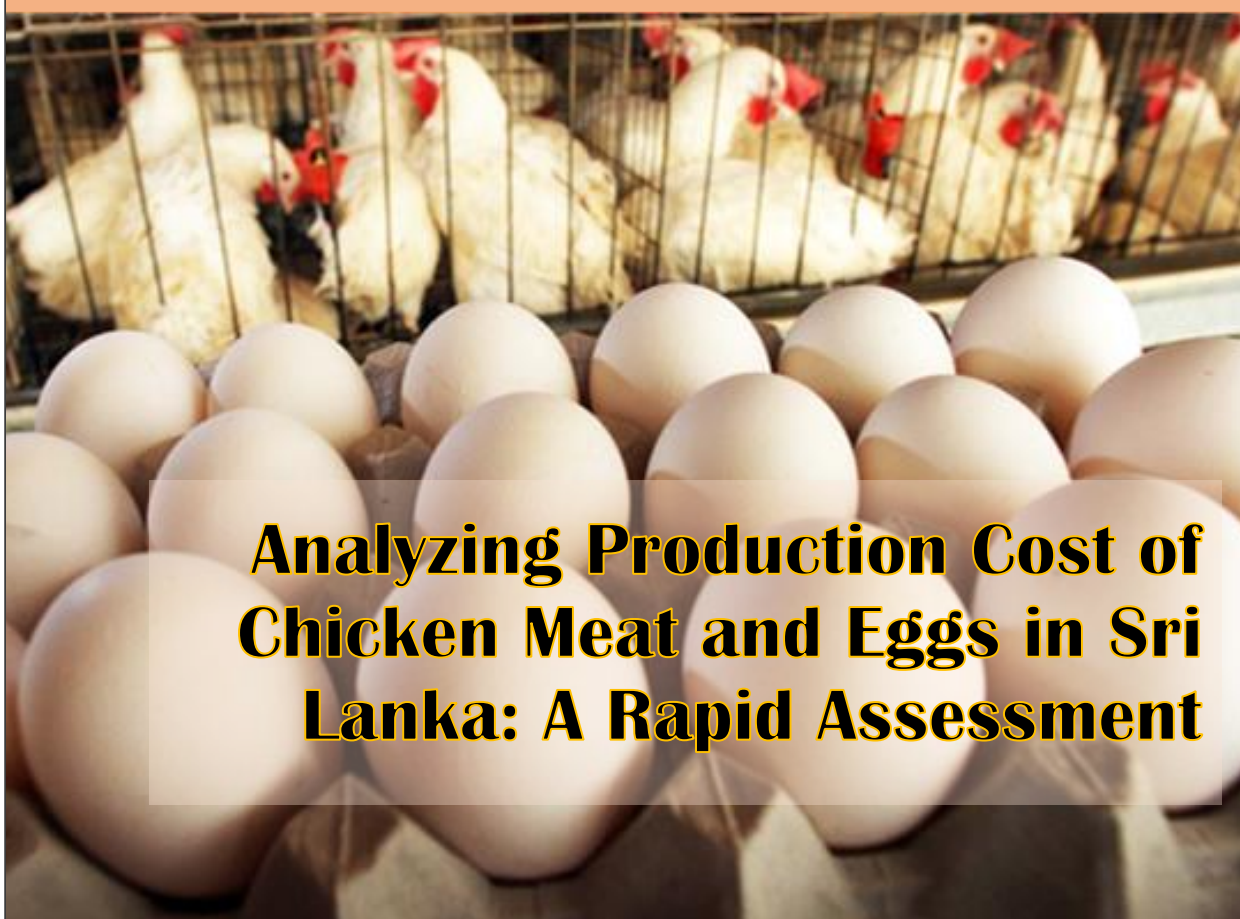


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Analyzing Production Cost of Chicken Meat and Eggs in Sri Lanka: A Rapid Assessment

Key Findings

#20 Egg producers # 20 chicken meat producers # 40 Producers were surveyed

Analyzing Production Cost of Chicken Meat and Eggs in Sri Lanka

- Small-scale, medium-scale, and large-scale producers

Total cost of production of one

Scale	Large	Medium	Small
Net cost of Production (Rs./Egg)	34.82	39.51	43.81

Total cost of production of 1 kg of chicken

Item (Rs.)	Small	Medium	Large
Cost for One kg (With Skin)	863.69	794.95	731.99
Cost for One kg (Without Skin)	912.59	840.12	773.14

- Feeding cost was the main contributory cost item of COP of eggs.
 - ✓ Around 90% of the total COP was the feed cost of large-scale producers while it was 86% of medium-scale producers and around 79% of small-scale farmers.
- Feeding cost was the main contributory cost item of COP of chicken meat.
 - ✓ Around 57% of the total COP was the feed cost per bird up to processing while it was 58% of medium-scale producers and around 73% of small-scale farmers.
 - ✓ Overall the total average percentage of feed cost out of the total cost was 64%.

Suggestions

The tax imposed on commercial poultry feed and their input should be reduced.

Overcome the tendency of all producers switching for low-cost ingredients as alternative raw materials for feed manufacturing.

Background

Insufficient local production of maize, which is the key ingredient in poultry feed, has resulted in challenges for the poultry industry. As a result, there has been a steady increase in feed prices and a significant drop in feed production. The producers highlight that the increasing cost of production is the one of key issues faced in the industry. Certain producers who were unable to survive in the industry have left the industry. Hence, the objectives of this study were to calculate the cost of production of a kilogram of chicken meat with skin and skinless at small-scale, medium-scale, and large-scale producers and to calculate the cost of production of eggs at small-scale, medium-scale, and large-scale producers.

Methodology

Primary and secondary data was collected. Multi-stage random sampling technique was applied in the sample selection of both layer and broiler meat production from September to October 2023. Considering the time and the cost, 40 farms 20 from each were selected from both chicken meat and egg producers. The scale of the farm was determined by the number of birds. The total sample size was divided into three scales by considering the market supply share. Accordingly, around 60% of the total production comes from large-scale farms and nearly 25% is supplied by medium-scale farms while around 15% of the total production is provided by small-scale farms. Pannala, Dummalasuriya, Katupotha, Bingiriya, Paduwasnuwara, Wariyapola, and Kobeigane veterinary ranges in the Kurunegala district were selected as study locations while Mahakubukkadawala, Puttalam, and Anamaduwa veterinary ranges in the Puttalam district were selected. At the same time, key informant interviews were conducted to gather relevant data and information from different actors. Then, the cost of production of eggs and meat at large-scale, medium-scale, and small-scale producers, and feed cost distribution of eggs and meat were calculated separately.

Findings

Cost of production of eggs at large-scale, medium-scale, and small-scale producers

All the cost items including fixed costs and variable costs have been considered when calculating the cost

of production (COP) of eggs. Poultry house preparation cost, feeders and auto drinkers, chick crates and manual drinkers were the main variables of the fixed cost. All the fixed cost variables depreciated according to the number of flocks for the entire lifetime of particular cost items. Cost for day-old chicks, feed and medicine costs, labour costs, and other variable costs are included in the variable costs.

According to Table 1 below, Rs. 34.82/egg for large-scale farmers, Rs. 39.51/egg for medium-scale farmers, and Rs. 43.81/egg for small-scale farmers have spent on producing one egg. Feeding cost was the main contributory cost item of COP of eggs. Around 90% of the total COP was the feed cost of large-scale producers while it was 86% of medium-scale producers and around 79% of small-scale farmers. A large share of the COP was the feed cost of egg production. The farmers highlighted that feed costs have increased more than three times compared with 2021. The feeding cost varied due to branded, quality and used different feed formulas.

Cost for day-old chicks was the next highest cost variable which was around 4% to 6% among different scales. It has ranged between Rs. 475 to 550 for large-scale farms. Day-old chick cost has varied from Rs. 210 to Rs. 870 among medium-scale farms. For small-scale farmers bought price of day-old chicks varies from Rs. 200 to Rs. 1,200. This is one of the major issues currently faced in the sector. Day-old chicks supply was not enough to fulfil the demand of the sector. Therefore, hatcheries have increased the deposit amount while ordering day-old chicks. Before the crisis, the hatcheries had kept a deposit of Rs. 25,000 for 1,000 chicks but it has increased to Rs. 200,000. In contrast, hatcheries were unable to supply the ordered number of chicks if the order had already been made. As a result of the shortage supply of day-old chicks in the market, a black market for day-old chicks is in operation. When the hatchery price of a day-old chick was Rs. 550, the black-market price was Rs. 1,100-Rs. 1,200. This was the reason for the huge variation of the day-old chick market prices. Otherwise, it was one of the barriers to entering into the sector as well as small-scale and medium-scale farms exist in the sector. It was

observed that most of the farms were not functioning at their full capacity of production.

Rs. 40.69 /bird for small-scale farmers, Rs. 12.35 to Rs. 25.78/bird for medium-scale farmers, and Rs. 5.09 to

Table 1: Cost of production of eggs (Rs/egg)

Rs. 11.76/ bird for large-scale farmers. When considering the fixed costs most large-scale farms had

Cost Items	Large		Medium		Small	
	Rs/egg	%	Rs/egg	%	Rs/egg	%
Depreciation cost of Fixed cost	0.01	0.032	0.06	0.130	0.43	0.927
Day-old chick cost	1.60	4.323	2.01	4.747	2.61	5.619
Chicks transport cost	0.001	0.003	0.005	0.011	0.027	0.058
Feed cost - up to laying	0.032	0.088	0.045	0.107	0.050	0.108
Laying feed cost	33.27	89.960	36.51	86.322	36.74	79.187
Electricity cost	0.07	0.197	0.09	0.208	0.25	0.543
Medicine cost	0.39	1.044	0.97	2.299	0.31	0.667
Labour cost - Female	0.80	2.169	1.63	3.851	2.85	6.147
Labour cost - Male	0.71	1.927	0.94	2.219	3.05	6.578
Rice husk cost	0.09	0.234	0.03	0.077	0.06	0.136
Litter removing cost	0.01	0.023	0.01	0.026	0.005	0.010
Other costs	0.0002	0.001	0.0009	0.002	0.0093	0.020
Total cost	36.98	100.000	42.30	100.000	46.40	100.000
Income received from curry chicken (-)	-2.16		-2.78		-2.59	
Net cost of Production	34.82		39.51		43.81	

Source: Authors (HARTI survey data, 2023)

Cost of production of meat at large-scale, medium-scale, and small-scale producers

The cost of production of meat was calculated at large-scale, medium-scale, and small-scale levels. All the cost items including fixed cost items and variable cost items have been considered when calculating the COP of meat. Poultry house preparation and equipment depreciation costs including feeders, auto drinkers, chick crates, and manual drinkers were the main cost variables of the fixed cost (HARTI survey data, 2023). All the fixed cost variables depreciated according to the number of flocks for the entire lifetime of particular cost variables. Cost for day-old chicks, transport costs, feed and medicine costs, labour costs, and other variable costs were included in the variable costs (HARTI survey data, 2023).

According to Table 2 below, the fixed costs were Rs. 34.71/bird for small-scale farmers, Rs. 17.91/bird for medium-scale farmers, and Rs. 9.05/ bird for large-scale farmers. The fixed costs ranged from Rs. 26.38 to

automated systems while some had battery cage systems. Small-scale farms had deep litter systems. Hence even the initial investment was high on a large scale; with the time value of money, it had less fixed cost compared to small-scale farms. Moreover, cages in small-scale farms' durability were low. Hence, frequent maintenance should be performed on small-scale farms and ultimately it increases the cost of production.

The cost per day-old chick was Rs. 371.29/bird for small-scale farmers, Rs. 350.40/bird for medium-scale farmers, and Rs. 190.75/bird for large-scale farmers. Total feed costs were Rs. 642.34 /bird for small-scale farmers, Rs. 610.39 /bird for medium-scale farmers, and Rs. 747.90/bird for large-scale farmers (Table 2). The total feed costs ranged from Rs. 440.00 to Rs. 835.00 /bird for small-scale farmers, Rs. 425.50 to Rs. 825.00/bird for medium-scale farmers, and Rs. 633.20 to Rs. 879.00/ bird for large-scale farmers (Table 2). Currently, there was a shortage of day-old chick (DOC) in the market and consequently, the closure of small and medium-scale farms can be visible. However, with the economic crisis; farmers had to deposit around Rs.

200,000 to buy thousands of DOCs. But when considering the small scale, they cannot do the ordering at once. As a result of small-scale farmers' inability to afford such an amount of money, they tend to buy DOCs from the black market. In the black-market broiler DOCs prices ranged between Rs. 450 to Rs. 520 (HARTI survey data, 2023). In this scenario, intermediaries were maintaining the black market while acquiring a huge profit margin. Some large-scale farmers had their hatcheries therefore transport cost was less compared to ordering DOCs from other hatcheries.

When considering variable costs, medicine was the second most contributory cost variable of COP of meat. The medicine cost for one bird is Rs. 10.01/bird for small-scale farmers, Rs. 11.29/bird for medium-scale farmers, and Rs. 8.06/ bird for large-scale farmers. The medicine costs ranged from Rs. 3.00 to Rs. 20.00 /bird for small-scale farmers, Rs. 7.20 to Rs. 15.00/bird for medium-scale farmers, and Rs. 6.00 to Rs. 10.00/ bird for large-scale farmers (Table 2). When considering small-scale farms DOCs' mortality rate was 6% to 8% and large-scale farms were 2% to 4% (HARTI survey

restraint to the efficiency of production and hence reduce profitability. Hence this cost for the medicine should be critically evaluated when considering costs of production. Even small-scale farms should pay attention to medication and safeguard against any zoonotic diseases that might suddenly attack the flock and cause unprecedented loss of cash and meat. There was a relatively higher cost of production under good hygienic conditions on a large scale as compared to the average hygienic conditions due to the extra cost involved in maintaining good hygiene. However, the benefit of good hygiene was reflected in the numerically higher gross income and net profit in response to good hygienic conditions.

Labour cost for Rs. 33.71/bird for small-scale farmers, Rs. 29.80/bird for medium-scale farmers, and Rs. 23.86/bird for large-scale farmers. When considering labour costs in small-scale farms they operated it manually; hence labour cost was high. But when considering large-scale farms most of them had fully automated systems hence labour cost was less compared to small-scale farms. The cost for removing litter per bird is Rs. 3.29/bird for small-scale farmers,

Table 2: Feed cost distribution of meat production

Item (Rs.)	Small	Medium	Large
Total Fixed Cost (with Poultry House & Equipment depreciation cost) per Bird	34.71	17.91	9.05
Cost per Day Old Chick (DOC)	371.29	350.40	190.75
Cost of Transportation for One Chick	1.87	1.56	1.00
Total Feed Cost for One Bird	642.34	610.39	747.90
Electricity and Water Cost for One Bird	6.71	9.20	10.13
Medicine Cost for One Bird	10.01	11.29	8.06
Labour Cost for One Bird	33.71	29.80	23.86
Paddy Husk Cost for One Bird	4.54	6.50	5.80
Cost for Removing Litter per Bird	3.29	3.40	3.88
Other Miscellaneous Cost per Bird	2.64	4.60	5.93
Processing Cost: Slaughtering/Cleaning/Skin Removal/Packaging	19.86	13.40	9.82
Total Cost for One Bird Up to Start Processing	1111.12	1045.05	1006.35
Total Cost for One Live Bird with Processing Cost	1130.01	1057.80	1015.49
Cost for One kg (With Skin)	863.69	794.95	731.99
Cost for One kg (Without Skin)	912.59	840.12	773.14

Source: Authors (HARTI survey data, 2023)

data, 2023). Poultry diseases represented a significant

Rs. 3.40/bird for medium-scale farmers, and Rs. 3.88 /



bird for large-scale farmers. The total cost for one bird up to start processing was Rs. 1,111.12/bird for small-scale farmers, Rs. 1,045.05/bird for medium-scale farmers, and Rs. 1,006.35/bird for large-scale farmers. A poultry farmer who wants top performance from his/her broiler flock must satisfy the birds' requirements through a carefully controlled management program that includes proper housing, lighting, nutrition, and disease control. Hence removing litter should be done properly.

The total cost for one live bird with processing was Rs. 1,130.01/bird for small-scale farmers, Rs. 1,057.80/bird for medium-scale farmers, and Rs. 1,015.49/bird for large-scale farmers (Table 2). The cost for one kg (With Skin) was Rs. 863.69/kg for small-scale farmers, Rs. 794.95/kg for medium-scale farmers, and Rs. 731.99/kg for large-scale farmers whereas the cost for one kg (Without Skin) was Rs. 912.59/kg for small-scale farmers, Rs. 840.12/kg for medium-scale farmers and Rs. 773.14/kg for large-scale farmers. The improved feed, slaughter facilities, and processing technologies have increased the safety and efficiency of large-scale units rather than small-scale producers; hence total cost for one live bird with processing on a large scale was less compared to small-scale producers.

The cost for a kilo (With Skin) ranged from Rs. 790.70 to Rs. 932.36/kg for small-scale farmers, Rs. 689.75 to Rs. 841.58/kg for medium-scale farmers, and Rs. 651.84 to Rs. 841.58/kg for large-scale farmers while the cost for one kilo (Without Skin) ranged from Rs. 835.88 to Rs. 984.74/kg for small-scale farmers, Rs. 729.16 to Rs. 889.67/kg for medium-scale farmers, and Rs. 689.08 to Rs. 884.82/kg for large-scale farmers. The cost to produce one kilogram on a small scale was high compared to a large scale as they have poor technology and most of the processing was done manually.

Costs associated with meat production

Feeding cost is the main contributory cost item of COP of meat. The total feed consumed by a bird (kg) was 3.39 kg/bird for large-scale farmers, 3.31kg/bird for medium-scale farmers, and 3.55 kg/bird for small-scale farmers. The benefits of broiler production depended on supplying the birds with the highest possible quality of feed. Feed millers face challenging times as prices of inputs including maize, and soybean have been rising like never before with this economic crisis. The time lag in decision-making and offering of the quota to maize imports resulted in most feed millers leaving the feed industry. Simultaneously, the scarcity of raw materials was one of the significant problems for feed mill operation, which influenced poultry feed price and quality found that feed conversion ratio was considered an important factor for determining the farm profitability, which resulted from the quality of chicks and feed and the broiler farm's management techniques. Almost the entire amount of soybean meal required for the feed industry is imported. Other ingredients such as fish meal, meat and bone meal, vitamins, minerals, and amino acid supplements as well as all feed additives are imported. In Sri Lanka, only 40% of maize was produced (R. Vidanapathirana, 2022). Feed quality is vital, as it plays a significant role in both intake and digestibility.

Production of commercial poultry feed is subject to a 15% Value Added Tax (VAT), but not the production of other animal feed. The levy solely applies to commercial chicken feed, which lessens the competitive advantage of commercial feed manufacturers and causes the feed business to collapse. In actuality, it is a tax on the rise in poultry feed sales as it moves up that chain. Since the end consumer would ultimately be responsible for paying

the VAT, it will essentially work as a tax on the domestic consumption of meat and eggs.

The feed conversion ratio (FCR) is the quantity of feed the bird consumes that can be transformed into one kilogram of live weight. When considering a feed conversion ratio of 1.67 for large-scale farmers, 1.75 for medium-scale farmers, and 1.91 for small-scale farmers. For broiler producers, an FCR of 1.91 means that their chickens gain 1 kilogram of weight for every 1.91 kilograms of feed consumed. The lower the FCR denoted the more efficient birds are at converting feed into food. Feed and water were offered ad libitum on any system to maintain an effective FCR ratio. A large share of the COP is the feed cost of meat production. The farmers highlighted that feed costs have increased by more than three times compared to 2021. The feeding cost varied due to branded, quality and different feed formulas. When considering the percentage of feed cost out of total cost per bird up to processing was around 57% of large-scale producers while it was 58% of medium-scale producers and around 73% of small-scale farmers.

Moreover, the average weight of a bird with skin was 1.38/kg for small-scale producers while it was 1.41/kg for medium-scale producers, and around 1.50/kg for large-scale farmers. Furthermore, the average weight of a bird with skin ranged from 1.40 to 1.63/kg for large-scale farmers, 1.33 to 1.55/kg for medium-scale farmers, and 1.16 to 1.63/ kg for small-scale farmers. The average weight of a bird without skin was 1.31/kg for small-scale producers while it was 1.33/kg for medium-scale producers, and around 1.42/kg for large-scale farmers. Furthermore, the average weight of a bird without skin ranged from 1.28-1.54/kg for large-scale farmers, 1.26 to 1.47/kg for medium-scale farmers, and 1.10 to 1.54/ kg for small-scale farmers.

In summary, the total average percentage of feed cost out of the total cost was 64%. With overall feed costs representing up to 64% of the total production costs, ensuring optimal feed quality and maximum feed efficiency should be a top priority for all scale producers.

Conclusions

The total cost of production of a kilogram of chicken meat with skin was Rs. 863.69/kg for small-scale farmers, Rs. 794.95/kg for medium-scale farmers, and Rs. 731.99/kg for large-scale farmers whereas the cost for a kilogram (Without Skin) was Rs. 912.59/kg for small-scale farmers, Rs. 840.12/kg for medium-scale farmers and Rs. 773.14/kg for large-scale farmers. The total cost of production of one table egg was Rs. 34.82 at large scale, Rs. 39.51 for medium-scale, and Rs. 43.81 for small-scale producers.

Suggestions

The poultry industry is currently operating below its full capacity as a smaller parent stock flock leads to a shortage of day-old chicks (DOC) (HARTI survey data, 2023). Hence proper parental line should be maintained after importing the parent stock. Currently, there is an issue with the quality of DOCs as most of the hatcheries mixed up the grade 1 and grade 2 DOCs. A proper monitoring system should be established to avoid those malpractices. The tax imposed on commercial poultry feed and their input should be reduced to a reasonable level. To overcome the tendency of all producers switching to low-cost ingredients as alternative raw materials for feed manufacturing would be a viable step.

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