



Employment and Income Generation Capabilities of Duck Farming : Experience From Kuttanad Wet Land Ecosystem

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ABSTRACT

Duck farming is a customary livelihood option utilizing the topographical peculiarities of Kuttanad wetland ecosystem and is important for income generation and employment opportunities. Present study was conducted to analyse labour utilization pattern and income generation from duck farming in Kuttanad region of Kerala. Multistage random sampling was employed for selection of respondents and comprised of total of 150 farmers. Four systems of rearing viz., Back yard rearing, semi intensive, nomadic and nursery rearing were identified and majority followed semi intensive system of rearing. The labour utilization pattern and income generation varied among different systems of rearing. Backyard rearing was found to provide an average daily employment of nearly 22.8 days per annum for the family. All other systems of duck rearing in Kuttanad region utilized both family labour and hired labour. The nomadic farming system found to be providing full time employment to the labourers throughout the season of flock migration and generated highest income. The gross income from backyard rearing system ranged from Rs. 300 to Rs.21,000 with an average of Rs. 5036/annum. The gross income from duck nurseries ranged from Rs. 15,990 to Rs. 3,75,000 with an average income of Rs. 93,077/annum. The gross income from semi-intensive rearing system ranged from Rs. 5,000 to Rs.5,26,000 with an average of Rs. 2,30,119/annum. The gross income from nomadic rearing system ranged from Rs. 2,50,000-7,40,000 with an average of Rs. 3,50,750/annum. The annual family income of farm families were concomitant with their respective income from duck farming.

Key Words: Duck farming , Income generation, Labour utilization pattern, Kuttanad ecosystem

INTRODUCTION

The wetland ecosystems worldwide are rich in biodiversity. These wetland systems contribute to the livelihood needs of the communities dependent on it. The Kuttanad Wet Land Eco System (KWLES) of Kerala, India is not an exception. KWLES has considerable ecological, economic and social significance. The KWLES has its unique ability to support agricultural activities like paddy cultivation, aquaculture and livestock production. Further it is a home to various flora and fauna contributing to the biodiversity of the state. Among the various models of livestock rearing viz. intensive-arable

farming systems, mixed-crop-livestock models, integrated or rotational farming systems, duck rearing is the one which is operated in all with different extend of resource utilization in Kuttanad. As in any Asian countries, duck farming here still follows the primitive practice of trans-human nomadic pastoralism. Integrating duck farming with paddy cultivation, piggyery, aquaculture etc. are also well accepted here. It needs no mention that duck farming has been a source of income and employment to the farmers of Kuttanad for many generations now. But, unfortunately the impact of changing agricultural pattern, man made changes to ecology, climate change and resource exhaustion has adversely

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Table 1. General profile of farmers.

(N= 150)

Sr. No	Particular	Frequency	Percentage
1	Age		
	Young(<30years)	02	01.34
	Middle aged (30 – 40 years)	26	17.33
	Upper middle aged (41 - 50 years)	57	38.00
	Old (> 50 years)	65	43.33
2	Education		
	No formal education	04	02.67
	Primary	30	20.00
	Secondary	91	60.67
	Higher secondary	20	13.33
	College	05	03.33
3	Occupation		
	Self-employment	19	12.67
	Daily wages	10	06.67
	Agriculture along with animal husbandry	15	10.00
	Duck farming	106	70.67
4	Experience		
	<1 year	04	02.67
	1 – 5 years	13	08.67
	6- 10 years	08	05.33
	> 10 years	125	83.33
5	Land holding		
	Landless	03	02.00
	Marginal	146	97.33
	Small	01	0.67

affected the farming system in general and duck farming in particular. Duck production is important in employment generation and providing additional income to the resource-poor farmers because of its on-farm and off-farm employment opportunities. Relying on these premises, a study was conducted with the objectives to assess the general profile of duck farmers in Kuttanad region, to identify the different rearing systems of duck farming in Kuttanad region and to analyse the employment and income generation abilities of duck farming in various rearing systems

MATERIALS AND METHODS

Kuttanad Wet Land Eco System (KWLES) is spread over three districts Alappuzha was purposefully selected considering it being highest duck population in the state, the population being

161422 birds (Livestock census, 2019). Further more Seventy five per cent of the duck farming is carried out in and around Vembanadu Lake and are mainly propagated in Alappuzha district. Since parts of both upper and lower Kuttanad regions fall in Alappuzha district, the panchayaths where duck rearing is predominant in both Lower and Upper Kuttanad regions were initially listed. For studying the profile of duck farmers of Kuttanad region, three panchayaths each were selected at random from both Upper and Lower Kuttanad regions (stage I). From each panchayath 25 duck farmers were selected at random (stage II) so that farmers engaged in all different systems of duck rearing were sufficiently represented. Thus the sample comprised of a total of 150 duck farmers for studying the general profile

The farmer profile was analysed using structured schedule with special emphasis on economic

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Table 2. Range and average flock size in different rearing systems.

Sr. No.	Flock size	Rearing pattern			
		Backyard	Nursery	Semi-intensive	Nomadic
1	Average flock size	29	9340	5469	11410
2	Range	5-200	2000-30000	369-23000	5000-30000

profile. Economic profile included land holding, income, income from duck farming, utilization of family labour and hired labour.

RESULTS AND DISCUSSION

General profile of the farmers

Analysis of the personal profile of duck farmers (Table 1) revealed that duck farmers of old age predominated even as the participation of younger age group was negligible. This necessitates appropriate policies and programs to attract entrepreneurs from among the younger generation. The involvement of youth in duck farming was meager in Tamil Nadu also where majority of farmers were above 45 years age and were highly experienced (Thilakar *et al*, 2021). The finding that most of the duck farmers had more than ten years of experience in duck farming was in line with the former finding. The major occupation of the majority of duck farmers was duck farming itself and most of the farmers were with secondary education. However, majority of farmers in Tripura (Das *et al*, 2020) and most of Bangladeshi farm women involved in duck farming (Khanum and Mahadi, 2015) had only primary education. Regarding dependence on income from duck farming, differing from the present observation, Oluwafemi (2015) observed that the poultry farmers of Edo state of Nigeria 86 per cent of the farmers were engaged in other jobs apart from poultry farming and for them poultry rearing was a subsidiary occupation.

Systems of rearing Four different rearing systems were found to be existing in the study area. These systems, even though not mutually exclusive, vary in the income generation and labour utilization patterns. The rearing systems identified were,

Backyard rearing - Duck rearing system in

which the ducks are kept in the homestead allowing scavenging and are fed with little supplementary feed.

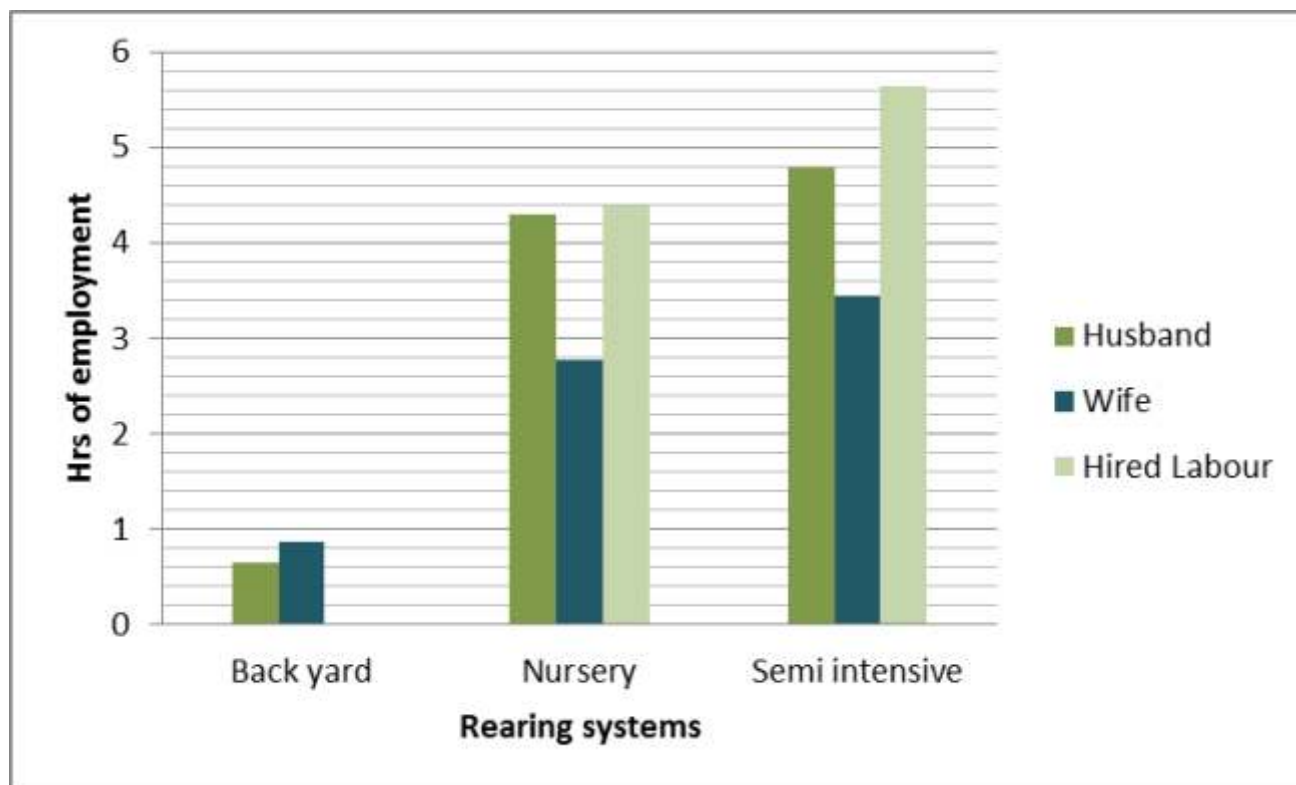
Nursery rearing - Ducklings are housed in sheds during day and night and are handfed. Day old ducklings are bought, brooded and reared up to 30 to 45 days and are mainly handfed with little foraging

Semi-intensive duck rearing - In this system, the birds are allowed to forage in the nearby water bodies and fields during day and are provided with a night shelter. The birds are also supplemented with shell grit and dried fish whenever necessary.

Trans-human Nomadic Duck farming- Trans-human nomadic duck farming is the seasonal migration of people with their ducks in search of foraging land and feed sources. Usually only the duck flocks travel with owners and laborers to lead them and they later return to their native village with or without the flock. In the present study, that majority of the duck farmers (44.00%) were practising semi-intensive rearing in which ducks are allowed to forage. Similarly three rearing systems, viz. Range system, restricted system and internal system were identified by Srikanth *et al* (2018) in Kerala itself. In Nigerian situations, duck farmers practiced ranging pattern of rearing of ducks with a night shelter ((Enoch *et al*, 2022) similar to that observed as foraging system in present study. Naga Raja Kumari and Subrahmanyeswari (2014) also observed that in the southern states of India, the farmers were adopting backyard and small scale poultry farms due to high economic viability when the feeding was sufficient from the foraging itself.

The flock size of backyard rearing systems ranged between 5 to 120 birds with an average of 29 birds per household. The flock size of duck

Plate 1. Employment generation in the different systems of duck farming



nursery farms ranged from 2000 to 30000 ducklings with an average of 9340 ducklings per farm. The flock size of semi-intensive rearing systems ranged from 369 birds to 23000 birds with an average flock size of 5469 birds. The flock size of nomadic rearing system ranged from 5000 to 30000 ducks with an average flock size of 11410 ducks (Table 2). However, the average flock size in Tamil Nadu farm holdings was reported as 2000 ducklings by Gopinathan *et al.* (2015).

Income and employment generation through duck farming

It was found that both men and women of the families were involved in duck farming in a majority of houses. However, men were involved in more households than women. It was also found that in most of the houses hired labourers were engaged too. Similar finding was reported in Tamil Nadu where mostly men formed major labour force for duck farming while women were equally involved in decision making. (Thilakar *et al.*, 2021). All four systems identified in Kuttanad region utilizes family labour. However, hired labour was not seen utilized in backyard system.

The employment generation abilities of duck farming when studied among Bangladesh painted a different picture where utilization of family labor was very low. (Jha *et al.*, 2015). Among the four systems of duck rearing studied, backyard system provided on an average 38.75 minutes and 51.85 minutes of gainful employment to men and women respectively. The duck nurseries provided on an average 240.80 minutes and 86.03 minutes of gainful employment to men and women respectively. The duck nurseries provided on an average 237.77 minutes of gainful employment to hired labourers. The semi-intensive rearing system provided on an average 224.49 minutes and 79.31 minutes of gainful employment to men and women respectively. The semi-intensive rearing systems provided on an average 338.38 minutes of gainful employment to hired labourers. The duration of engaging hired labour in the case of semi-intensive systems in the present study was found to be more than in duck nurseries, in a day because ducks have to be taken out for foraging. Nonetheless, the nomadic farming system, unlike other systems of rearing was found providing full

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Table 3. Range and average of annual gross family income and income from duck farming

Sr. No		Rearing pattern			
		Backyard (Rs.)	Nursery (Rs.)	Semi- intensive (Rs.)	Nomadic (Rs.)
1	Annual gross family income				
	Average income	63,706.90	1,35,907.14	2,49,407	3,59,250
	Range	20,000-1,90,000	58,500- 3,75,000	85,000- 5,26,000	2,50,000-7,40,000
2	Income from duck farming				
	Average income	5,036.55	93,077.65	2,30,119	3,50,750
	Range	300-21,000	15,990-3,75,000	5,000-5,26,000	2,50,000-7,40,000

time employment to the labourers throughout the season of flock migration. Pangemanan *et al* (2014) also reported that the farm families of Indonesia the labour generated fluctuated with the size of duck farms.

The income generation from duck farming was worth analyzing as this might throw light on the profitability and productivity of this enterprise in this region. Further, the income generated from duck farming would act as a powerful motivational factor as reported by Saleh and Lumintag (2012) in their study in Indonesia. There was a markable difference in the income generated from different rearing systems. This might be due to the variations in flock size and the differences in the recurrent expenditure involved in the different systems of rearing. The average annual income generated from backyard duck rearing units was Rs.5036. Majority of farmers in Tripura were considering duck farming as a subsidiary income source and had an average annual income was 2692/household/year.(Das *et al*, 2020). A similar scenario reported by Jha *et al* (2017) where average annual income was farming was 2663.30/household/year . It was worth mentioning that the highest income generated was from nomadic duck farming in Kuttanad area. This might be due to the low cost or no cost feeding strategies adopted which are based much on foraging as compared to other systems of rearing. The average annual income derived from this system was Rs. 359250. However

Tamizhkumaran *et al* (2013) reported that average annual income of nomadic farmers of Puduchery was Rs. 1, 30,000 from a 1000 birds unit. The annual family income of the families involved in various systems of duck farming viz. backyard, nursery, semi-intensive and nomadic was found to be Rs. 63706, Rs.135907, Rs. 249407 and Rs. 3590215 respectively which was concomitant with the gross annual income derived from various systems of duck farming in that order(Table 3). According to Pangemanan *et al* (2014) total family income of duck farming households of Indonesia was 43,118,899 IDR. i.e, Rs. 2,14,0521. Another study from South Sulawesi province, Indonesia found that the average income of duck farms was found to be IDR 1,273,102 per month (Lestari and Siregar,2015). The present study documented the income generated solely from duck farming although various reports have demonstrated an increase in income generation when integrated with other crops viz. fish and rice. (Saika *et al*, 2020)

CONCLUSION

Much wider opportunities like that of integration of traditional farming practices and farm tourism await the duck production system of Kuttanad. Even though duck industry in Kuttanad is being commercialized with changing agricultural patterns of the region, the traditional nomadic and foraging systems of farming is preferred due to their high economic feasibility. However, the recurrence of zoonotic diseases like

avian flu, for which the migrating flocks held responsible for, has impacted the acceptance of this highly relevant livelihood option. Policies focusing on maximizing strengths vis-a-vis exploiting the opportunities of this no or low input farming system along with efforts to remove social stigma associated with health risks and societal status of farmers might prove beneficial.

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