



E-ISSN: 2320-7078

P-ISSN: 2349-6800

www.entomoljournal.com

JEZS 2020; SP-8(4): 1244-1247

© 2020 JEZS

Received: 14-05-2020

Accepted: 16-06-2020

Karthiga SICAR-Indian Veterinary
Research Institute, Bareilly,
Uttar Pradesh, India**Dinesh Kumar**ICAR-Indian Veterinary
Research Institute, Bareilly,
Uttar Pradesh, India**G Anandasekaran**ICAR-Indian Veterinary
Research Institute, Bareilly,
Uttar Pradesh, India**Satheesh Kumar P**CSIR-Indian Institute of
Integrative Medicine, Jammu,
Jammu and Kashmir, India

Pig farming enhance the livelihood of Socio-economically backward families in Tamil Nadu

Karthiga S, Dinesh Kumar, G Anandasekaran and Satheesh Kumar P

Abstract

The Indian livestock provides 7.70 million tonnes of meat in a year¹ and average per capita availability of meat is still merely 3 kg against the recommended levels of 11 kg meat per annum². As a result, half of all mothers and their children in these areas were undernourished². Rapidly expanding human population also pressure us towards increase meat production. Therefore, Sustainable development in agriculture and other allied sectors like low invest and least maintenance pig farming is one of the best solution and profitable business ideas for them. So, Present study has been carried out to assess the economic contribution of backyard piggery in the livelihood security of socio-economic backward families in Tamil Nadu, India. Observation and personal interaction were done from four districts having highest pig population districts of Tamil Nadu covering a total of 240 piggery farmers by cluster and multistage random sampling. A total of 2455 animals were covered under study. Majority of them were marginal land holders having average of less than 0.7 ha of land. We estimated the average annual income from pig farming was ₹21,435 and Percent contribution of pig farming to total annual household income per family 31.25%.

Keywords: Pig farming, economic contribution, Livelihood security

Introduction

Sustainable development in agriculture and other allied sectors due to a variety of factors, which include various development and welfare programs as well as the structural changes taking place in the countryside because of ongoing economic reforms in the country. At the same time 26.93 crore of people below the poverty line in 2011-12 has been estimated as 25.7% in rural areas, 13.7% in urban areas and 21.9% for the country as a whole. Poverty is highest among Scheduled tribes (43%), SC (29%), OBC (21%) and others (12%). Notably, in that 14.43 crore people are landless with below the poverty line in India. And they all are consuming poor nutrients than are required to stay healthy^[2]. They consume 550 fewer calories and 13 gm protein, 5 mg iron, 250 mg calcium and about 500 mg vitamin A lesser. Children below the age of three are consuming, on an average, 80 ml of milk per day instead of the 300 ml they require. India attains sustainable development in dairy sector ranked first in world milk production but much behind in meat production. Meat is one of the important protein source for socio-economically backward people. The average per capita availability of meat in India is still merely 3 kg against the recommended levels of 11 kg meat per annum. India has some religious restriction on beefs slaughter among Hindu community. So for their protein and other nutrient requirements they are mainly depends other animal sources viz., chicken, sheep and goat. But in Developed countries are not had any religious restriction on beef. So they produce more than the required rate of meat production. Higher cost of other animal meats and poor purchasing power of socio-economically backward peoples result, half of all mothers and their children in these areas were undernourished^[2].

Therefore, for them introducing pig farming for meat production is one of the best solutions for under nutrition and profitable business. Keoboulapheth and Mikled were also reported same that Smallholder livestock production systems improve livelihood and food security for the poorest people^[3]. In addition to providing protein for human consumption, pigs are often one of the main sources of cash income in rural areas and provide manure for cropping^[4]. Pig rearing promotes better self-reliance along with greater food security to urban households⁵ and increase income. Pig husbandry has special significance for improving the socio-economic status of the tribal farmers in north eastern India^[6]. Constraints perceived by the small scale pig farmers in Sivasagar district of Assam^[7].

Corresponding Author:**Satheesh Kumar P**CSIR-Indian Institute of
Integrative Medicine, Jammu,
Jammu and Kashmir, India

Southern part of India very few studies conducted. Very recently, a break event analysis of pig farming in Tamil Nadu study revealed that to operate pig farm without any profit or loss the farmers has to keep at least 30 animals per annum, and returns per kilogram of pork production is Rs. 96.4 [8]. So, present study has been carried out to assess the economic contribution of pig farming in the livelihood security of socio-economic backward families in southern India of Tamil Nadu.

Material and Methods

Selection of study area

The present study was conducted in Tamil Nadu, which lies in Southern most part of the Indian Peninsula. It is the second largest state economy in India with 13,842 billion in Gross Domestic Product after Maharashtra. Total covered area is 130,060 sq. km with a total population of 72,147,030 (2011 census). During 2012 (according to 19th livestock census) total livestock population was about 22.72 million, in that Cattle contributes highest with 38.79% followed by Goat 35.84%, Sheep 21.07%, Buffalo 3.43% and Pig 0.81%. The total number of pig population was 0.18 million numbers. Among Tamil Nadu state, highest share of pig population was found in Salem (20,321) followed by Vellore (18,865) and Villupuram (17,031) districts.

Sampling design

The present study was carried out by combination of cluster and multistage random sampling technique was adopted in selected Salem, Vellore, Cuddalore and Namakkal of districts of Tamil Nadu blocks, villages and households. From each of the selected districts, one block from each district were selected randomly. From each block, six villages and from

each village, ten households were selected making a total 240 households comprising backyard piggery from the selected four blocks.

Collection of Data

Primary data were collected through a household survey (piggery farmers) by personally interviewing the head of selected households with the help of pre-tested questionnaire specifically designed to achieve the objectives of the study.

In order to assess the status and success of pig farming among the socio-economically backward families, the income generation through pig husbandry was computed and referred to the contribution of piggery in terms of income (₹) generation of the farmers in the study area in a year. The respondents were then categorized into low, medium and high income groups on the basis of equal intervals between minimum and maximum income achieved by them and scored 1, 2 and 3 respectively. This checklist was administered to the farmers and served as guidelines for estimation of economic contribution on the basis of data as elicited by the livestock owners. In addition to primary data, secondary data was sourced principally from published data by Government of India on incidence of diseases, livestock population, etc. and information published in peer-reviewed journal papers, conference proceedings, and unpublished post graduate thesis.

Results and Discussion

Average Annual Income Generation through Pig farming:

Respondents from the study area had an average annual income of ₹31,188, ₹13,269, ₹21,812 and ₹21,501 only from backyard piggery in Salem, Namakkal, Cuddalore and Vellore respectively.

Table 1: Descriptive analysis of the Respondents According to their Annual Income Generation from pig farming

District	Sample size	Average Annual Income (Mean± Std. Error)	Std. Deviation	95% Confidence Interval	
				Lower Bound	Upper Bound
Salem	60	31188.139 ^{a,b} ± 1456.594	13203.107	28317.476	34058.802
Namakkal	60	13269.613 ^{a,b} ± 979.784	5540.070	11338.650	15200.577
Cuddalore	60	21812.662 ^{a,b} ± 1423.394	12789.503	19007.428	24617.896
Vellore	60	21501.301 ^{a,b} ± 1803.335	6630.609	17947.278	25055.323
Pooled	240	21435.42 ^{a,b} ± 1311.092	12696.448	18852.48	24018.35

a Covariates appearing in the model are evaluated at the following values: No of Pigs per family = 10.27, Age of Owner = 56.23.

b Based on modified pig population marginal mean.

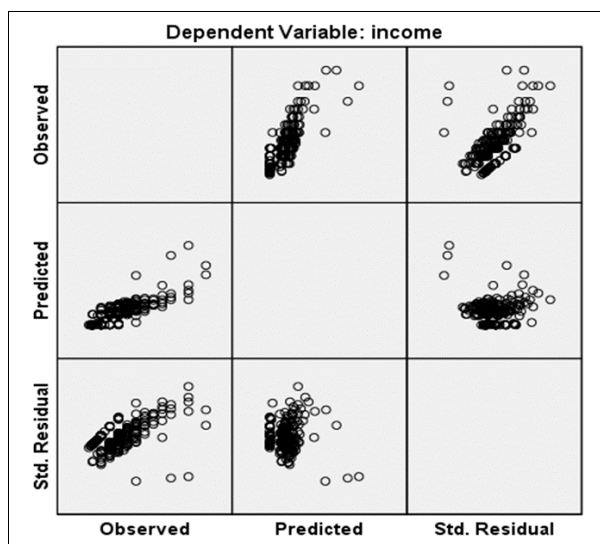


Fig 1: Standardized residual plot confirms the accuracy of prediction. Std. Residual = Observed – Predicted

A residual distribution in Figure 1 showing a trend to higher absolute residuals as the incomes of the response increases suggests that one should transform the response. Transforming a response in this fashion often simplifies its relationship with a predictor variable and leads to simpler model: Intercept + No of pigs + District

Economics of Annual Income Generated from Pig farming

The average expenditure and income details have been obtained from the respondents on each of the items detailed below. Table 2 indicates that irrespective of the family could generate ₹68,455.87 as gross annual incomes from rearing an average of 10 pigs. To earn the amount, the annual expenditure per household was ₹87,319, ₹7,662, ₹60,814 and ₹30,257 in Salem, Namakkal, Cuddalore and Vellore respectively in a year on construction of temporary sheds, equipments, feeds, piglets, medicines, other miscellaneous expenses including the family labour.

Thus, total net annual income from the pig stock was ₹21,943

only per year per pig farm. The net annual income generated by the respondents that came from Salem district was at higher scale followed by Cuddalore, Vellore and less annual income generated from Namakkal because of different form

and stage of selling the pigs and piglets. Pigs were reared mostly for breeding purposes in some districts although they sold adult live pigs compared to other districts (Namakkal) where the pigs were reared for fattening purpose.

Table 2: Annual Income per Family from Pig farming (in ₹)

Average Expenditure/ Income Statement per household		Salem	Namakkal	Cuddalore	Vellore	Pooled
Annual Household Expenditure	1. Construction of temporary sheds	₹ 2,000.00	₹ 400.00	₹ 1,600.00	₹ 500.00	₹ 1,125.00
	2. Equipment	₹ 500.00	-	-	-	₹ 125.00
	3. Average piglets stock owned by a family	19	2	14	7	11
	4. Cost of piglets	₹ 800.00	₹ 800.00	₹ 800.00	₹ 800.00	₹ 800.00
	5. Cost of feed (12 Month*30days *No of piglets* 2 Time*Rs.5/kg)	₹ 68,400.00	₹ 5,760.00	₹50,400.00	₹ 25,200.00	₹ 37,440.00
	6. Labour cost	₹ 14,400.00	-	₹ 7,000.00	₹ 3,000.00	₹ 8,133.00
	7. Veterinary aid	₹ 700.00	₹ 200.00	₹ 500.00	₹ 250.00	₹412.50
	8. Miscellaneous	₹ 500.00	₹ 500.00	₹ 500.00	₹ 500.00	₹ 500.00
Total expenditure		₹ 87,319.00	₹ 7,662.00	₹60,814.00	₹ 30,257.00	₹ 46,513.00
Gross Annual Income	1. Sale of meat (@₹ 160/kg)	₹ 60,800.00	₹ 8,000.00	₹38,400.00	₹ 22,400.00	₹32,400.00
	2. Sale of adult live pigs (@₹. 10725/adult pig)	₹ 40,755.00	₹10,725.00	₹30,030.00	₹ 15,015.00	₹ 24,131.25
	3. Sale of piglets (@₹ 1975/piglet)	₹ 15,800.00	₹ 1,975.00	₹13,548.50	₹ 13,825.00	₹11,287.12
	4. Sale of manure (@₹ 1000/ton)	₹ 1,152.00	₹ 232.00	₹ 648.00	₹ 518.00	₹ 637.50
	5. Total gross income	₹1,18,507.00	₹20,932.00	₹82,626.50	₹ 51,758.00	₹68,455.87
Total Net Annual Income		₹ 31,188.00	₹13,270.00	₹21,812.50	₹ 21,501.00	₹21,942.87

Net annual income per pig per year

Net annual income per pig per year	Salem	Namakkal	Cuddalore	Vellore	Pooled
Total net annual income per pig farm	₹ 31,188	₹ 13,270	₹ 21,813	₹21,501	₹21,943
Annual household expenditure per pig per year	₹ 4,596	₹ 3,831	₹ 4,344	₹ 4,322	₹ 4,273
Gross annual income per pig per year	₹ 6,237	₹ 10,466	₹ 5,902	₹ 7,394	₹ 7,500
Total net annual income per pig per year	₹ 1,641	₹ 6,635	₹ 1,558	₹ 3,072	₹ 3,227

Table 3: Contribution of Income from Backyard pig farming

Percent Contribution	Salem	Namakkal	Cuddalore	Vellore	Pooled
Total average annual income from pig farming	₹ 31,188	₹ 13,270	₹ 21,813	₹ 21,501	₹ 21,943
Total average annual household Income	₹ 70,828	₹ 67,967	₹ 69,397	₹ 70,828	₹ 69,755
Percent contribution of pig farming to total annual income	44%	20%	31%	30%	31.25%

Per cent contribution of income from backyard pig farming to total annual income

Irrespective of the four districts, the total average annual income from backyard pig farming was ₹21,943 and total average annual household income was ₹69,755. Thus the per cent contribution of backyard pig farming to the total annual income was per cent. The annual income from backyard piggery contributed about 31.25 per cent to the total annual family income. Similar kind of study reported by Boopathy and his co-workers state that backyard piggery contributed nearly about 30 percent in 2016^[81]. The continuing increase in the demand for piglets and pork represents a major opportunity for improving livelihood security and increasing incomes. Thus the future of piggery farming appears to be bright in future.

Pig farming has many advantages. Pigs grow faster than any other animals. Compare to other Domestic animal pigs have higher feed conversion efficiency and it can consume all types of feed including grains, hostel waste, garbage, etc.^[7]. Pigs attain sexual maturity earlier than other animal and sow at their age of 8-9 months it can bred for first time. Sow can farrow twice a year and it gives birth of 8-12 piglets per farrowing. Dressing percentage is around 60 to 80 % and it is one of the most nutritious meat. Expenditure for setting up of pig farming requires less investment and high Benefit-cost ratio. Pig manure is widely used in crop production and fish farming purpose. Pig fat also has a huge demand in poultry

feed, paints, soap and chemical industries. They reach market weight at 7-8 months of age and within this period they reach marketable weight of 70-100 kg. Pig farming business is one of the best Opportunities for the small and landless farmers, unemployed educated or uneducated young people and for the rural women to earn income.

Conclusion

The annual income from backyard piggery contributed about 31 percent to the total annual family income. Thus the region offers ample scope for piggery development because of the traditional involvement of population in pig rearing activities. The continuing increase in the demand for piglets and pork represents a major opportunity for improving livelihood security and increasing incomes. Thus the future of piggery farming appears to be bright. Better marketing, improved access to credit and training on improved pig husbandry practices are the key interventions needed to boost the profitability of pig production in the study region.

Acknowledgment

The authors would like to thanks mentors of ICAR-Indian Veterinary Research Institute and fund supported by Indian Council of Agricultural Research.

References

1. Department of Dairying, Animal Husbandry and

- Fisheries, New Delhi. 20th Livestock Census. 2019. <http://dadf.gov.in/sites/default/files/Key%20Results%2BAnnexure%202018.10.2019.pdf>
2. National institute of nutrition, Hyderabad. Dietary guidelines for Indians - A manual, 2011, 1-14.
 3. Keoboulapheth Mikled, Growth performance of indigenous pigs fed with *Stylosanthes guianensis* CIAT 184 as replacement for rice bran. Livestock Research for Rural Development, 2003, 15(9).
 4. Kadirvel G, Kumaresan A, Das A, Bujarbaruah KM, Venkatasubramaniam V, Ngachan SV. Artificial insemination of pigs reared under smallholder production system in north eastern India: success rate, genetic improvement and monetary benefit. Tropical Animal Health and Production. 2013; 45(2):679-686.
 5. Kumaresan A, Bujarbaruah KM, Pathak KA, Das A, and Bardoloi RK. Integrated resource-driven pig production systems in a mountainous area of Northeast India: production practices and pig performance. Tropical Animal Health and Production. 2009; 41: 1187-1196.
 6. Jerome Bindelle, Pascal Leterme, and Andre Buldgen. Nutritional and environmental consequences of dietary fibre in pig nutrition: a review. Biotechnol. Agron. Soc. Environ. 2008; 12(1):69-80.
 7. Rafiqul Islam, Phuleswar Nath, Arunima Bharali N. Constraints perceived by the small scale pig farmers in Sivasagar district of Assam: An analysis. The Asian Journal of Animal Science. 2016; 11(1):73-77.
 8. Boopathy Raja, Selvakumar KN, Serma Saravana Pandian, Meenakshi Sundaram, Murugan, Jayanthi. Break-Even Analysis of Swine Farming in North Eastern Tamil Nadu, India. International Journal of Science, Engineering and Technology. 2016; 4(6):823-25.