



Study of Pashu-Vigyan Incubator in Income and Employment Generation among Pig Entrepreneurs

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ABSTRACT

Non-ruminant livestock farming like piggery holds tremendous scope for solving the problem of unemployment for the youth while generating a steady source of income in uncertain times by making them *Atm-Nirbhar* or self-reliant. The present study attempted an overall analysis of the income and employment generation among the pig entrepreneurs of Pashu-Vigyan Incubator. These piggery entrepreneurs were the ones who had attended the Piggery Entrepreneurship Development Program at Agri-Business Incubator IVRI. The study revealed that the average employment generation for family and hired labour were 68.72 and 374.98 man-days respectively and a noteworthy overall employment generation (average of 245 man-days/labour) was seen due to pig enterprises. Substantial change in annual income of the entrepreneurs was observed owing to piggery farming. Majority of them (72.50%) were earning profit from piggery. Almost half of them (44.82%) were making medium level of profit (5-10 lakhs) and almost one third were even earning profit upto 50 lakhs annually. An average profit of Rs. 5,24,382 from piggery enterprises was elucidated and the benefit-cost ratio (BCR) was found to be 1.33.

Keywords: Piggery enterprises, Economics, Employment generation income generation, BCR, Profit

INTRODUCTION

India predominantly being an agrarian country with the agro-allied sector contributing 10 per cent of total GDP and employing 44.2 per cent workforce of the country (NSO 2019) is on the forefront of the livestock market as well both in terms of milk and meat products. The output value from livestock was about 31.81 per cent of the total agriculture and allied sector (National Accounts Statistics, 2019). Livestock sector contributes nearly 4.11 per cent of revenue to the country's gross domestic product (GDP). The percentage of people working in animal production is 2.10 per cent of the total workforce (Periodic Labour Force Survey Annual report, 2018-19). With 9 per cent of the population being youth the unemployment rate in the country is 7 per cent, with rural unemployment being 5.68 per cent and urban unemployment 8.45 per cent (CMIE report, 2020). The agribusiness incubator

of ICAR- IVRI more popularly known as the Pashu-Vigyan Incubator is paving a way for mitigating the problem of youth unemployment under the RKVY-RAFTAAR program of the Government of India to Manifest the dream of "*Aatm-nirbhar Bharat*" through its various innovative entrepreneurship development programs and other interventions. Pig farming is an untapped way towards independence and self-employment for youth and farmers with low investment. The Pashu-Vigyan Incubator is creating an ecosystem for 'Entrepreneurship Development' and start-ups in diverse areas of livestock and animal science. It's "Entrepreneurship Development Programme" (EDP) on Piggery provides research knowledge on the technical front along with mentorship at the business level to the farmers and youth who are the budding entrepreneurs in pig farming. The larger perspective is to strengthen agri-businesses motivation in pig farming as a profession through entrepreneurship

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development, innovation and value addition as per need providing a thrust in the piggery sector which helps to open up opportunities for entrepreneurs/start-ups in the global scenario as well.

MATERIALS AND METHODS

The study was conducted in the 'Division of Extension Education' ICAR-Indian Veterinary Research Institute, Izatnagar. The *ex-post facto* design was used because the trainings considered in the present study had already occurred. A purposive sampling method was applied on the list of trainees who have attended the Piggery Entrepreneurship Development Programme organized by Agribusiness Incubator ICAR-Indian Veterinary Research Institute, during 2018-19, 2019-20 and 2020-21. A final sample size of 80 trainees (who had positively started their piggery enterprises and had returned the e-questionnaire duly filled) were selected. The data were collected via e-questionnaire which was developed for the purpose and individually followed-up telephonically. The employment generation was calculated in 'Man-days' (1 man day = 8 hours) generated by pig farming in a year. It was assessed by a structured mailed questionnaire consisting of questions on average time spent in various piggery operations. The time spent was multiplied to 365, elucidating working hours created in a year by a pig farm. Annual working hours created by pig farms was divided by 8 to obtain the man-days generated from the piggery enterprise and based on this categorization into low, medium and high levels was done according to the equal class interval method. For economic analysis, income and expenditure done by the entrepreneurs on the piggery enterprises both in terms of fixed capital and variable cost incurred, profit or loss experienced by the piggery entrepreneur and their level of profit was taken into consideration. The respondents were further segregated as low, medium, high based on their income, expenditure and net profit or loss. The data collected were scored, tabulated and analyzed using suitable descriptive statistical tools such as frequency, percentage, Mean, SD and correlation.

RESULTS AND DISCUSSION

The favourable and promising results were seen with regard to the performance of the piggery enterprises of the trainees of the Pashu-Vigyan Incubator in terms of income and employment generation.

It can be elucidated from Table 1 that more than half of the respondents (63.45%) had low level of total employment generation (≤ 547 man-days/annum) in piggery farming, followed by high (15%) and medium (2.5%) level of employment. The result is in line with Seth (2012) where piggery intervention had positive impact on overall employment generation. The result is in consonance with the findings of Gupta (2018), but in contrast with that of Tiwari (2000) and Lal *et al.* (2009) who reported a beneficial effect of training on the duration of employment spells. It is further contradicted by findings of Kumar *et al.* (2012) as well. Average annual employment generation for one individual labour was elucidated 245 man days. This is in sharp contrast and at better numbers as compared to the flagship rural employment generation programme of Government of India under MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) which guarantees a minimum of 100 days of wage employment in a year to every household whose adult members are willing to do unskilled manual work, for each adult member of the rural family.

Table 1: Distribution of respondents according to the level of total annual employment generation from pig enterprises

Total annual employment generation (man days)	Trainees (N=80)
Low (≤ 547)	51 (63.45)
Medium (548-890)	25 (31.25)
High (≥ 891)	4 (5.00)
Mean \pm S.E.	443.70 \pm 23.57

Figures in the parentheses indicate the percentage

From the Table 2 it is clear that more than half of the respondents made a total investment of less than 12 lakhs in the piggery enterprises and fell under the low investment category followed by medium category (11-22 lakhs) with 35 per cent of the respondents. Mere 15 per cent were in high investment category (> 22 lakhs). The findings are somewhat similar to that of Panday *et al.* (1997).

More than two-thirds of the respondents reported an annual income upto Rs. 25 lakhs in piggery enterprises, followed by medium (Rs. 25-50 lakhs). About 9 per cent of them were also earning income

Table 2: Distribution of respondents according to the level of total expenditure per annum in piggery enterprises

Total expenditure/annum (lakhs)	Trainees (N=80)
Low (<11)	40 (50.00)
Medium (11-22)	28 (35.00)
High (>22)	12 (15.00)
Mean \pm S.E.	15.76 \pm 1.82

Figures in the parentheses indicate the percentage

of 50 lakhs and above. The finding is in consonance with that of Sasikala (2008); Jini (2008); Kumar *et al.* (2013) and Gupta (2018) but not in line with that of Seth (2012); Payeng *et al.* (2013) and Bhagavanrao (2015).

As the data in the current study is of the trainees starting their piggery enterprises after attending training at Pashu Vigyan Incubator IVRI in 2018 and onwards. Data collection and interaction with the pig entrepreneurs revealed the severe effect of global pandemic of COVID-19. Restrictions in the movement, lack of feed supply, shutting down of markets (both local and national), widespread disease and basic infrastructure failure shook the whole economy and piggery sector was also not spared. The lockdown negatively hampered the sale of pigs as there were no markets for the same. Furthermore, the meat consumption went down drastically during the pandemic due to the misinformation related to consumption of meat among the masses. The export sector was completely shut down. The pig entrepreneurs were forced to sell their kind at losses in order to prevent animals from perishing. Thus, very high income as per expectation was not met for most of the piggery entrepreneurs due to the pandemic,

Table 3: Distribution of the respondents according to the income from piggery enterprises per annum

Annual income from piggery enterprise (lakhs)	Trainees (N=80)
Low (<25)	61 (76.25)
Medium (25-50)	12 (15.00)
High (>50)	7 (8.75)
Mean \pm S.E.	21.00 \pm 0.88

Figures in the parentheses indicate the percentage

although a significant number of them were able to generate a decent level of profit too.

Table 4 elucidates the various categories of average cost incurred in the pig farming enterprises. The cost of purchase of animals (piglets/sows/boars) formed 84 per cent (Rs 93,462) of the fixed cost incurred by the farmers in the piggery enterprises. Around 12 per cent was spent on construction of buildings (Rs 13,537) and a mere 4 per cent on purchase of machinery and equipments.

Among the average variable expenditure, expenses on feed was almost 74 percent (Rs 10,73,565) forming the major part of the total expenditure as well. Average labour cost was around 15 percent of the total expenditure, amounted to Rs 2,10,936 forming the second most important expenditure. Next crucial expenses were on veterinary services and electricity comprising about 5 and 3.5 per cent (Rs 65,908 and Rs 51,765) respectively. Water and transport expenses consisted 1.5 and 1.7 per cent respectively and were less considerable. Miscellaneous expenditure was negligible (<1%).

Table 4: Economics of piggery enterprises

Category	Value in INR
Fixed cost	
Animals	93,462.5
Building	13,537.5
Machinery	4,210
Total fixed cost	1,11,210
Variable cost	
Feed	10,73,565
Labour	2,10,936
Veterinary expenses	65,908
Electricity expenses	51,765
Water expenses	23,056
Transportation expenses	25,579
Miscellaneous expenses	14,349
Total variable cost	14,65,158
Total average annual expenditure	15,76,368
Sale of pig meat (piglets/pigs)	21,00,750
Sale of manure	0.00
Sale of other items related to piggery	0.00
Total income from piggery enterprises	21,00,750

Sale of pig meat (Pigs and piglets) formed the sole source of income earned from the piggery enterprises. There was no income from the sale of skin and hides, manure, and other items related to piggery. Pig farmers were only selling the pig meat and were not focusing on earning by selling other by products of the pig farming. The findings are in consonance with that of Rajiv and Pandey (2000).

The average total expenditure on piggery enterprises was Rs 15,76,368 and the average total income was Rs 21,00,750. The average profit of Rs 5,24,382 was elucidated. The average benefit cost ratio (BCR) of 1.33 came out for the current study indicating the piggery enterprises are sustainable, profit yielding and will deliver positive net present value. The current findings are in line with that of Ezeibe (2010) and Nagaraj (2011). The BCR tends to be on the lower end due to COVID-19 lockdown and the resultant economic stagnation.

Majority (72.50%) of the entrepreneurs were earning profit whereas 27.50 per cent of them had suffered a loss. These findings are in consonance with Saikia *et al.* (2017). The losses faced was traced back to the global pandemic induced lockdown (from March 2020 to September 2020 and April 2021 to June 2021) due to COVID-19. Moreover, majority of enterprises were started in 2019 and onwards and it takes a minimum of 2 to 3 years for a piggery enterprise to sustain and start yielding profit. The prime period of profit making underwent a lockdown thus hampering their sales of pigs.

From Table 5 it is evident that 44.82 per cent of the pig entrepreneurs who had earned profit were from the medium profit category, making profit of 5 to 10 lakhs per annum whereas 24.13 per cent of them reported in low profit category making a profit of less than 5 lakhs per annum. More than 10 lakhs per annum was made by 31.03 percent of the respondents who earned high level of profit. The results of profit is in line with the findings of Goswami (1997) who also concluded piggery enterprises to be fruitful to the farmers. The entrepreneurs who reported low to medium level of profit, owe this to the lockdown imposed during the pandemic of COVID-19, which severely impacted the sales and profit in a negative way for them.

Table 5: Distribution of respondents according to their level of net income generation

Net annual income (lakh)	Trainees (N=58)
Low (<5)	14 (24.13)
Medium (5-10)	26 (44.82)
High (>10)	18 (31.03)

Figures in the parentheses indicate the percentage

The income generation from piggery enterprises was highly correlated with entrepreneurial behaviour of the respondents ($r=0.305^{**}$), Social Participation ($r=0.363^{**}$) and adoption of the scientific piggery practices ($r=0.342^{**}$) indicating that respondents who had high income generation showed more social participation and had high entrepreneurial behavior (Table 6). Similarly, it is also clear that all those respondents who had adopted scientific piggery practices were generating higher annual income from piggery.

Table 6: Correlation of Income from piggery enterprises with various variables considered under study

Variables	'r' value
Social Participation	0.363**
Experience	0.339*
Attitude	0.172
Entrepreneurial Behaviour	0.305**
Adoption	0.342**

CONCLUSION

The final inferences are that majority of the respondents had no family involvement and went for hired labour for their piggery operations. Piggery enterprises resulted in substantial employment generation for family and hired labour. Economic analysis showed a medium to low level of initial investments, low level of fixed capital investment and variable cost per annum on the piggery enterprise. Almost one third of the entrepreneurs were earning profit. Among those in profit, almost half were making medium to very high level of profits as well. The study though under some influence of the global pandemic of corona virus, majority of the piggery enterprises showed resilience and sustained. Undoubtedly, piggery is a sustainable and promising alternative income and employment generating business

for the unemployed youth if backed by scientific push. And, also not forgetting that one of the crucial investment made should be towards mitigating and preparedness towards unprecedented circumstances like COVID.

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