



Poverty Alleviation through Poultry Rearing-insights from Participatory Action Research of Farmer FIRST Project

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ABSTRACT

The study was conducted during August, 2017–March, 2022 at Jabalpur, Madhya Pradesh, India under the ICAR sponsored Farmer FIRST project of NDVSU for the empowerment of smallholder farmers through poultry rearing. About 165 women farmer beneficiaries were selected for the poultry intervention through participatory action research method and they were given 20 Narmada Nidhi female and 2 male birds as part of improving their livelihood. Capacity building activities were also included along with input distributed. The results indicated that the productivity increased from 42 eggs household⁻¹ to 103 eggs and the income from poultry rearing increased from ₹ 1856 from the start of project to ₹ 16931 during the financial year 2020–21. The contribution of poultry to livelihood increased from 15.67 in the year 2017–18 to 20.32% during 2020–21. The results showed that poultry helped in increasing the economic conditions of beneficiaries. The income obtained was primarily used for the meeting child care and household activities and very less was invested in sustaining the enterprise. Poultry farming had proved to be an important source of livelihood for rural women. With proper training and support, it enabled them to earn a steady income while taking care of responsibilities at home. The success of this initiative demonstrated the potential of small poultry units to uplift rural economies.

KEYWORDS: Farmer FIRST project, poultry farming, poverty alleviation

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1. INTRODUCTION

Ensuring production, profitability and sustainability of smallholder farms are key challenges faced by policy makers worldwide (Bisht et al., 2020). Food security and poverty alleviation strategies globally depend on livelihood opportunities for resource poor farmers. About 54.6% of Madhya Pradesh's workforce is engaged in agriculture (Anonymous, 2018) while contributing 40% to the overall GSDP in 2018–19 (Gulati et al., 2021). Of total farmers, 48.31% are marginal farmers with 0.49 ha average land holding and 27.24% are small farmers with 1.14 ha average holding (Anonymous, 2019). With about 63.40 lakh small and marginal farmers in Madhya Pradesh (Anonymous, 2011), small land area constrains year-round agricultural livelihood opportunities (Rapsomanikis, 2015). Livestock can provide sustainable income to small-scale farmers, ensuring regular income flow and food security (Banda, 2021). Sustainable and profitable livestock enterprises require human resource capacity building (Moran and Blair, 2021; Varijakshapanicker et al., 2019). Livestock farmers currently face multiple challenges including food and water insecurity conflicts and unpredictable climate change effects, which may exacerbate other challenges (Kapari et al., 2023). Novel technologies and capacity building activities for skill development help improve production, productivity and marketing for smallholders, helping them manage farming risks and uncertainties (Kopler et al., 2023). However, access to human resource enrichment activities remains limited, especially for marginal and women farmers (Arslan et al., 2022). The poultry sector plays a multi-faceted role in rural household socio-economic development. Poultry rearing significantly impacts equity in income, employment and poverty reduction in rural areas. Over 70% of Indian rural household's own livestock, with most being small, marginal and landless households. Poultry are largely kept by land-scarce poor households commercially due to low initial investment and operational costs (Ali, 2007). Recent demand for livestock-based products has increased significantly due to rising income, urbanization, changing preferences and increased nutritional awareness (Jalari and Devarjulu, 2017). The livestock and poultry sector is emerging as an agricultural growth engine and potential export earnings sector. Poultry industry is the fastest growing component of global meat production, consumption and trade, with developing economies leading expansion (Kumar et al., 2022). Rising poultry production provides nutritional sufficiency opportunities, spurs global poverty alleviation and generates sustainable income for landless small farmers in developing countries (Assa, 2012). India's poultry industry has a 10.5% annual growth rate. Current average annual consumption is 3.5 kg poultry meat and 1.8 kg eggs (35–40 eggs) (Mani and Beillard, 2021). Excluding

milk, poultry meat and eggs contribute almost 50% to animal protein consumption in India (Anonymous, 2018). Nearly 85% of Indian poultry farmers are landless, marginal or small-scale farmers, indicating scope for small and medium poultry development (Anonymous, 2023). Rising awareness for protein-rich diets and higher nutritional value of poultry meat increases consumption demand, significantly contributing to poultry processing market growth (Scudiero et al., 2023; Bruckert, 2021; Devi et al., 2014). However, India's poultry industry faces challenges including high price fluctuations, lack of trained staff and extension networks, lack of organized marketing systems and non-availability of improved breeds, contributing to poor production and productivity, especially in backyard and small-scale sectors. Poultry's role in poverty alleviation, food security and gender equality promotion in developing countries is well documented (Birhanu et al., 2023). Ensuring good markets, price fluctuation protection, capacity building for unskilled farmers and developing cooperatives and FPOs will help develop India's poultry sector (Hennessy et al., 2021). This study analyzed poultry intervention effects on poverty alleviation using a cluster approach where neighboring village groups received improved breeds, inputs and capacity building activities to improve scientific production and management strategies for poultry production.

2. MATERIALS AND METHODS

The study was conducted during August 2017–March 2022 at Jabalpur, Madhya Pradesh, India. as part of the evaluation of the impact of Farmer FIRST Project entitled “Farmer's Empowerment through Improved Integrated Farming Practices” of Nanaji Deshmukh Veterinary Science University, Jabalpur, Madhya Pradesh, India. As part of the project, six villages (Padariya, Silua, Chhatarpur, Deori, Kailwas and Ghana) were selected for farmer upliftment through improved integrated farming techniques. Cluster based methods were employed for upliftment of farmers. Beneficiary identification was carried out through Participatory Action Research.

An action plan was chalked out for socio economic development of the farmers and various modules were identified viz crop based module (which included the rice and wheat farming), Horticulture module (which included fruit and vegetable cultivation), Natural resource farming module (which included azolla cultivation, silage making and vermin composting enterprise), Enterprise module (which included fish farming) and livestock module (which included goat rearing, poultry rearing and dairy farming).

Poultry farming was specifically included as a method of intervention because of the higher number of landless farmers in the adopted villages. Since the area was peri urban in nature and there were good markets for poultry products

like egg and meat, the intervention was specifically included. About 150 landless below poverty line households were selected as beneficiaries of the intervention. They were distributed poultry in two phases—first in September, 2017, followed by January, 2018. Since women of the household showed more inclination towards poultry rearing they were made the custodian of the birds. Improved F₁ birds i.e. Narmada Nidhi developed by Nanaji Deshmukh Veterinary Science University, Jabalpur was distributed to the beneficiary household. Each household were given twenty female birds and two male birds each 8 weeks old. Before the distribution the baseline socio economic analysis of the households were conducted. Training was given to beneficiaries on scientific backyard rearing before the start of the intervention and also refresher training was given at village level on routine basis (at six months interval). Apart from training health care support was provided to the beneficiaries like treatment of sick birds, Vaccinations (new castle's Disease) and deworming.

After the initial distribution, twenty beneficiaries were added each year till 2021. The total number of beneficiaries involved in the project year-wise is given in Table 1.

Table 1: Number of beneficiaries under poultry rearing module year wise from 2017 to 2021

Sl. No.	Financial year	Total beneficiaries (20+2 unit)
1.	2017–18	150*
2.	2018–19	164*
3.	2019–20	175*
4.	2020–21	185*

*: A few beneficiaries (12%) dropped out each year due to various reasons

Data regarding variables on production, productivity and socio-economic status were collected on a regular basis from the beneficiaries (N=185) through direct questionnaire through face-to-face interview. The pre and post intervention data of the 185 beneficiaries who continued to ally with the project were calculated to assess their level of socio-economic empowerment.

3. RESULTS AND DISCUSSION

The pre-intervention results given in Table 2, highlighted that the mean age of poultry farmers is 45.89 and the majority of them have less than 5 years of formal education. The mean household income was ₹ 47019.96 with 55.68% (N=103) of the beneficiaries earning less than the mean income. Only 78 households were rearing poultry before the start of the Farmer First intervention and the mean strength of flock was only 6.32. The production bird⁻¹ was

Table 2: Pre-intervention value of socio-economic and production variables (N=185)

Sl. No.	Variables	Mean value
1.	Mean age of farmers	45.89
2.	Educational qualification	4.7 years
3.	Family size	5.23
4.	Annual Household income	47019.96
5.	Household rearing poultry	78
6.	Mean flock strength	6.32
7.	Mean egg production household ⁻¹	227.7
8.	Price egg ⁻¹	₹ 4.45
9.	Mean income from eggproduction	₹ 1013.27
10.	Average age of egg production	28 weeks onwards
11.	Average production bird ⁻¹	42 eggs
12.	Age at which birds are marketed (for meat)	1.5–2 years
13.	Average Weight at marketing	1.78 kg
14.	Average price obtained bird ⁻¹	₹ 345.12

only 42 egg clutch⁻¹ and mean egg production household⁻¹ was 227.7 eggs only.

Majority of the households were rearing non-descript birds and all of them either sold or consumed birds between 1.5–2 years. The birds were sold in the domestic market and fetched very high prices since they were marketed as indigenous birds. The average marketable weights of birds were 1.78 kg and the mean sale price of birds was ₹ 345.12. The pre-intervention socio-economic profile of the farmers (N=185) were as below in table 2.

Due to intervention of the, Farmer FIRST Project economic empowerment of the farmers happened during the period as detailed in Table 3. The production and productivity of the poultry enterprise also increased during the period as given in Table 4. The mean flock's strength increased from 6.32 before the financial year 2017–18 to 18.92 in the financial year 2020–21 due to intervention. Mean productivity also increased from 42 eggs hen⁻¹ year⁻¹ to 103 eggs hen⁻¹ in 2021–22. Income from egg production from ₹ 1856 to ₹ 16931 which indicated a huge increase in the livelihood level from poultry farmers. In the first year of the project, the contribution of poultry to total family income was 15.67 it increased gradually to 20.30 in 2021–22. A dip income happened in 2019–20 which was primarily due to the dip in egg price during lockdown I of COVID-19 crisis as the result of spread of fake news regarding the spread of COVID-19 through eggs. The results indicated that fake

Table 3: Post-intervention value of socio economic and production variables (N=185)

Sl. No.	Variables	Mean value
1.	Mean age of farmers	48.32
2.	Educational qualification	4.9 years
3.	Family size	5.04
4.	Annual household income	83415
5.	Household rearing poultry	185
6.	Mean flock strength	18.92
7.	Mean egg production household ⁻¹	1856.57
8.	Price egg ⁻¹	₹ 8.23
9.	Mean returns from egg production	₹ 15244
10.	Average age of egg production	21 week onwards
11.	Average production bird ⁻¹	103 eggs
12.	Age at which birds are marketed (for meat)	1.5–2 years
13.	Average weight at marketing	2.01 kg
14.	Average price obtained bird ⁻¹	₹ 393.2

news in animal husbandry sector could negatively impact the livelihood of small holder farmers and measures should be taken to restrict its spread. The mode of marketing for farmers were sale to nearby shops and the reason for premium price was primarily due to the brown colour of egg which was primarily considered as desi in Jabalpur markets and fetched higher prices for the farmers. Ngongoloet al. (2020) highlighted that in developing countries small holder poultry rearing assisted in mitigation of poverty and contributed to about 20–25% of the livelihood income.

The majority of the farmers (N=101) said that they used the extra income earned from the sale of eggs for the purchase of educational materials for children and paying school-related expenses. About 32.12% (N=53) said they used the amount to buy food and household items. Only 6.66% (N=11) responded that they used the income earned to expand the enterprise or start new enterprises. Similar results were obtained by Salequeet al. (2016) in their study on poultry farmers in Africa. The results indicated that the focus should be ensured to increase the sustainability of the enterprise and orientation should be given to farmers for expanding enterprise.

Table 4: Yearly production and productivity values of chicken

Sl. No.	Variables	2017–18 N=150	2018–19 N=164	2019–20 N=175	2020–21 N=185
1.	Mean flock strength	19.32	18.56	18.74	18.92
2.	Mean egg production hen ⁻¹	72	95	98	103
3.	Mean egg production household ⁻¹	1345.56	1732.21	1830.45	1856.57
4.	Price egg ⁻¹	7.36	8.97	7.56	9.12
5.	Income from egg household ⁻¹	9903	15338	13838	16931
6.	Mean household income	63214	73271	71254	83415
7.	Contribution of poultry to household income	15.67	20.93	19.42	20.30

4. CONCLUSION

The Farmer FIRST Project's poultry intervention significantly improved landless farmers' socio-economic status in adopted villages. Introducing Narmada Nidhi birds with training and healthcare support substantially improved flock strength, egg production and household income (₹ 1,013 to ₹ 16,931), benefiting children's education. However, COVID-19's impact through fake news highlighted small-holder farmers' vulnerability to market disruptions, suggesting need for information management strategies and enterprise sustainability measures.

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