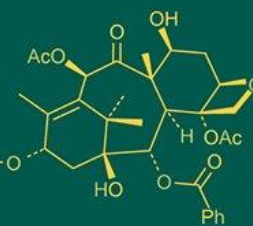
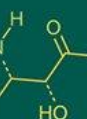
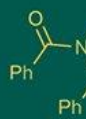


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Livestock based integrated farming system improved livelihood and nutritional security round the year for rural farm women

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Abstract

Chandel district is predominantly inhabited by tribal population is agrarian in nature and practice traditional farming systems raising both crops and animals which has been an integral part of life since time immemorial. Majority of the farmers are marginal and small land holders with low per capita income who practice subsistence farming to make their livelihood by rearing livestock and poultry through backyard farming with less knowledge on integration of livestock based farming. The present success story highlights the empowerment of a rural woman farmer through the adoption of a livestock-based integrated farming system. With technical guidance and capacity-building support, the farmer integrated Horti/Goatery/piggery/poultry with crop production, fodder cultivation, and value addition activities. Efficient utilization of farm resources such as crop residues for livestock feeding and recycling of animal waste as organic manure significantly reduced production costs and improved soil fertility. The diversified farming approach ensured year-round income, enhanced household nutritional security, and minimized risk from crop failure. As a result, the woman farmer naming Agnes aging 54 years old from Lamphoupasna village achieved a substantial increase in farm productivity and net income, leading to improved living standards and financial independence. The intervention also strengthened her decision-making ability, social recognition, and participation in community-level agricultural activities. This success story demonstrates that livestock-based integrated farming systems are a sustainable and viable pathway for enhancing income, livelihood security, and women in this way her income achieved triple times as compare to earlier income. Livelihood security, and increased women empowerment in rural areas. of Chandel district Manipur

Keywords: Integrated, farming, livestock, livelihood and nutritional security

Introduction

Agnes aged 46 years, resident of Lam, phou Pasma village, Chandel District, is a farmer who owned a land covering an area of 1 (one) hectare, was practising subsistence farming for her livelihood. As the farmer depend on agriculture requires lot of man-power and energy but even after this hard work, She is not in a position to earn for her livelihood, being small farmer, there is very little left after paying for all inputs but after attending the training programmes and different interventions by ICAR-KVK Chandel she has started following the scientific methods of cultivations which helped her in better production and productivity and also under Doubling Farmers Income programme, the scientists of ICAR-KVK Chandel organised different trainings on rearing and management of improve breeds of piggery and poultry birds and Livestock based Integrated Farming System, she adopted the technology of Integrated Farming System in her farm by growing Agri-Horti-Piggery-Goatery -Poultry-Fishery based farming system in order to maximize farm productivity for enhancing his livelihood.

Table 1: Profile of farmer and status of farming enterprises before and after KVK intervention

Year of adoption of the Intervention by Farmer for Doubling Income	2019-20
Total land holding of the farmer in ha. (Where intervention is taken up)	1.50 ha
Crops/ enterprises under taken before intervention	Local cultivars of rice, maize and seasonal vegetables and rearing of desi bird
Area (ha.) during the initial years	0.75 ha
Current status of land holding after KVK intervention (include area expansion & reason of expansion)	She has expanded an area of 0.75 ha from previous 0.75 ha and now total area of 1.5ha is under cultivation including fish pond, piggery, goatery, poultry and duckery shed
Problems Faced by Farmers before	Technology know-how, scientific method of livestock farming and improve breed of pig and poultry birds.

Materials and Methods

The study was conducted in selected Lamphou Pasna village adopted under TSP programme of Chandel district, Manipur, under the operational area of Krishi Vigyan Kendra. The region is characterized by a subtropical climate with moderate rainfall, suitable for diversified farming systems including crops, livestock, and fisheries.

Selection of Beneficiaries

Rural farm women were selected through participatory rural appraisal (PRA) techniques. Priority was given to small and marginal farm families interested in adopting livestock-based integrated farming systems (IFS). A total of 10 farm women beneficiaries were included in the intervention programme.

KVK Intervention

KVK introduced improved technologies to replace traditional practices and enhance productivity and income:

Piggery: Introduction of improved breed Hampshire crossbred pigs instead of local desi pigs for higher growth rate and better feed conversion.

Goatery: Introduction of improved breed Black Bengal goats for better meat production and reproductive performance.

Poultry: Introduction of improved backyard poultry breed Srinidhi instead of local desi birds for enhanced egg and meat yield.

Duckery: Introduction of improved Duckery breed White Pekin duck instead of local duck for enhanced egg and meat production.

Integrated farming components

Integration of livestock (pig, goat, poultry) with crop production for enhancing and Recycling of farm waste such as animal dung for manure and compost preparation.

Inclusion of fish farming and cultivation of maize HQPM, banana and other vegetables as cabbage, beans, carrot etc for nutritional security.

Capacity building and training

On-campus and off-campus training programmes were conducted on scientific livestock rearing, feeding, breeding, and disease management.

Demonstrations on improved housing, vaccination, and biosecurity measures were provided.

A successful farm woman after KVK intervention

Mrs. Agnes is very sincere hard working woman and attended several nos of training on livestock and poultry farming. As she needs financial support for expansion of her farm size for better income in order to run her family smoothly. KVK provided critical inputs such as: Improved breed piglets, goat kids, and poultry chicks, Vaccine, mineral mixtures, and feed supplements. The technology demonstrated are Agri-Horti-Piggery-poultry - Duckery-goat based Farming system.

Components in detail

1. **Livestock- Piggery farming:** A low cost piggery unit with 4 pigs (Three female and one male).
2. **Poultry cum fish farming:** A total of 50 poultry Srinidhi birds are reared near one pond.
3. **Livestock- Goatery farming:** Semi intensive goatery farming (Three female and one male).

4. **Duckery based farming system:** Total area of 50 white pekin ducks (40 females and 10 male)
5. **Agri-Horticulture based farming system:** A total area 0.50 ha area is utilized for growing Maize and Horticultural crops like, banana, beans, cabbage, carrot, etc.

Brief on Performance of Technological Intervention (Result)

The technology intervened by the KVK Chandel to the farmer about the Integrated Farming System where livestock like piggery, poultry and goatery was included in cereals, and vegetables based farming system. The new method of cropping system and integrated farming system has enabled to develop a framework for an alternative development model to improve the feasibility of small sized farming operations in relation to larger ones. Also starts producing higher yield with better production of crops and livestock. The outcome of the performance of technology interventions are given below:

Result and Discussion

Outcome of the components in detail

1. **Livestock- Piggery farming:** A low cost piggery unit with 4 pigs (Three female and one male) are reared. In a year she got around Rs.134, 000 from selling piglet from 3 sows on an average of 8 piglets per sow @ Rs 5500 per piglets.
2. **Poultry cum fish farming:** A total of 50 poultry are reared near one pond. He could get around rs. 72500 from selling of fish and poultry birds apart from using the pond water as live saving irrigation for winter crops.
3. **Goatery based farming system:** A total of 5 nos of Black Bengal goat (4:1) are reared near one pond. She could get around rs. 71080 from selling of 3 adult goats and 4 kids after attaining one year. She further kept one adult male and one female goat.
4. **Duckery based farming system.** A total of 50 White Pekin ducklings are reared and after attaining 4 months she could get around rs. 48000 from selling adult ducks for meat purpose.
5. **Agri -Horti based farming system:** Around 0.75 ha area are utilized for growing Maize and Horticultural crops like, banana, beans and king chilies, cabbage, carrot, etc. Around 150000/- from selling these Horticultural products.

Data Collection

Data were collected before and after intervention using structured questionnaires and personal interviews. The parameters recorded included:

- Cost of cultivation and livestock rearing
- Gross and net returns
- Productivity of crops and livestock
- Household nutritional status (milk, meat, egg consumption)

The semi-intensive system combines the advantages of both intensive and extensive systems. Animals are partly confined and partly allowed to graze or scavenge, ensuring better productivity with reduced input cost.

Livestock and poultry management

All the animals and poultry birds were provided well-ventilated, clean, and dry housing and proper feeding and management for pigs, goats and poultry. In case of goats allow for grazing for 6 hours daily on pasture specially for goats. Supplement with concentrate feed, especially for pregnant and lactating goats. Provided green fodder, dry fodder, and mineral mixture during the whole study period.



Fig 1: Field activities, farmer training and livestock interventions

Health Care

Regular vaccination were done. Maintain hygiene and biosecurity. Regular deworming were done and biosecurity measures for external and internal parasite control

Sanitation and Hygiene

Clean sheds, feeders, and drinkers regularly. Use disinfectants to maintain hygiene. In poultry, follow all-in all-out system to break disease cycles. Effective health care management of livestock and poultry relies on a combination of preventive practices, good nutrition, proper housing, and strict biosecurity. These practices not only

Reduce disease incidence but also enhance productivity, profitability, and sustainability of farming systems, especially for small and marginal farmers.

Method of Analysis

The collected data were analyzed using simple statistical tools:

- Calculation of Gross Cost, Gross Return, and Net Return
- Benefit-Cost (B:C) ratio
- Comparative analysis between pre- and post-intervention situations

Table 2 before intervention: Economics of with cost benefit ratio

Components	Gross Cost (Rs)	Gross Return (Rs)	Net Return (Rs)	BC ratio
Local rice-maize-seasonal vegetables	43500	74250	30750	1.70:1

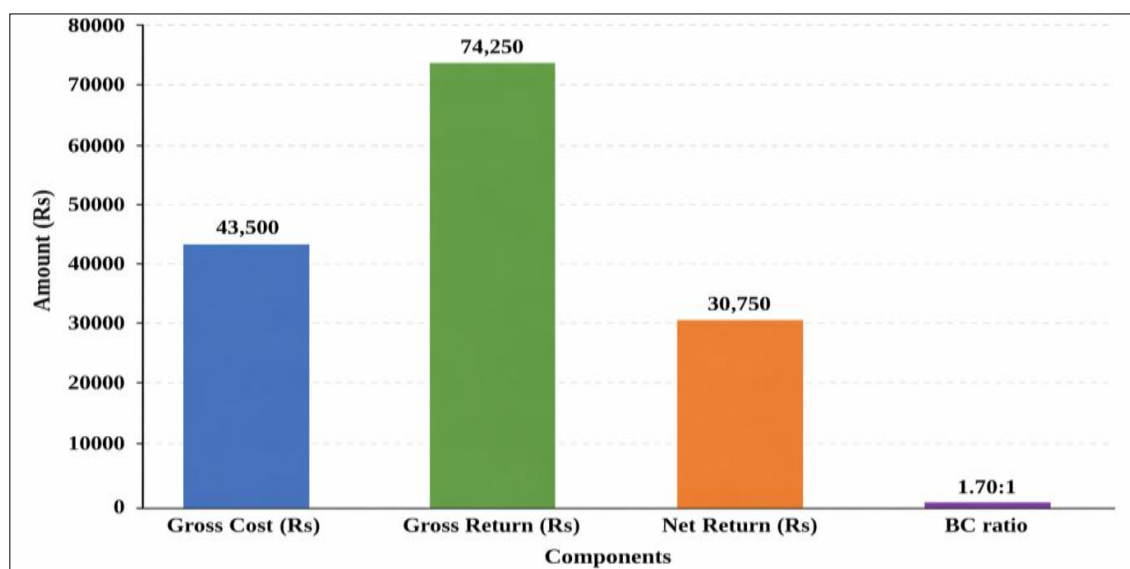
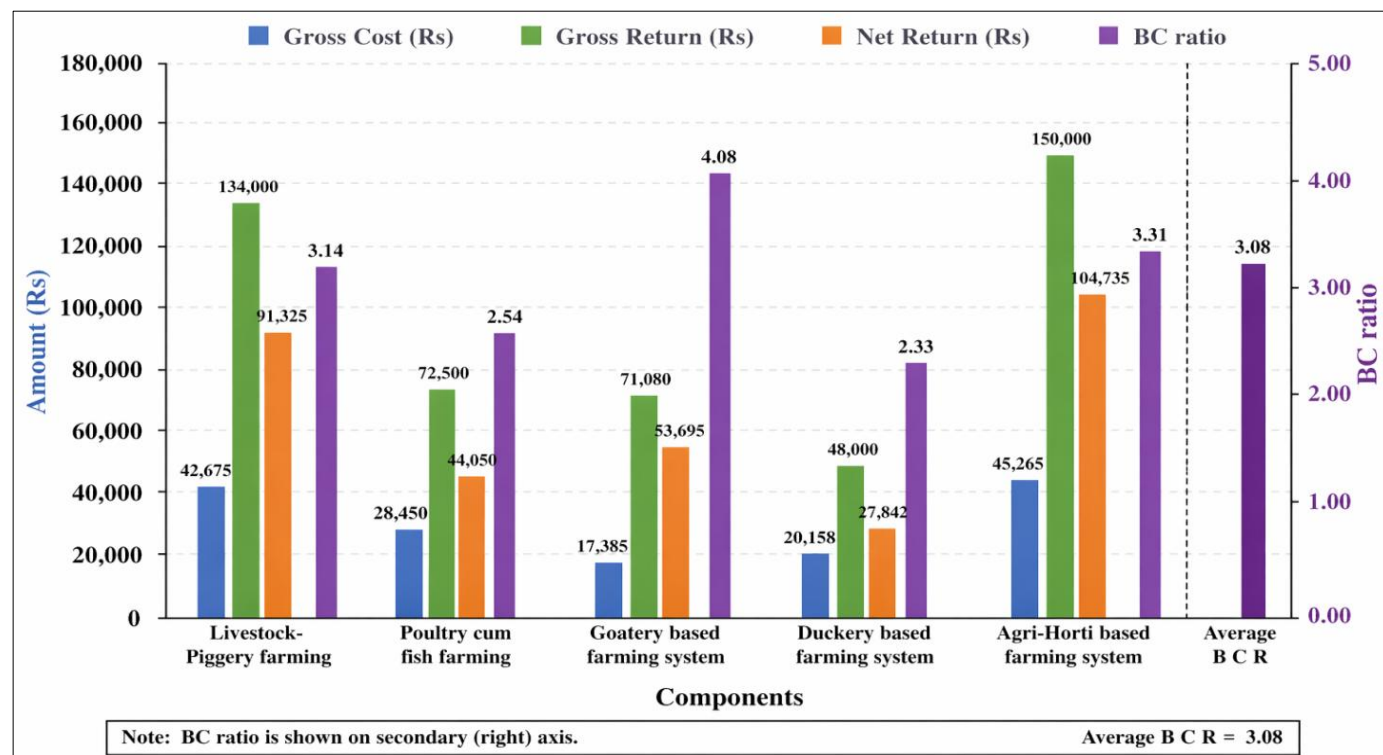


Fig 2: Economic analysis showing cost, return and B: C ratio

Table 2: After intervention: Economics of with cost benefit ratio

Components	Gross Cost (Rs)	Gross Return (Rs)	Net Return (Rs)	BC ratio
Livestock- Piggery farming	42675	134, 000	91325	3.14
Poultry cum fish farming	28450	72500	44050	2.54
Goatery based farming system	17385	71080	53695	4.08
Duckery based farming system	20158	48000	27842	2.33
Agri-Horti based farmingsystem	45265	150000	104735	3.31
Average B C R				3.08

**Fig 2:** Comparative economics of farming systems

Conclusion

Piggery, goatery, and poultry rearing under a semi-intensive system provide a reliable and continuous source of income for rural farm women throughout the year. These enterprises have short production cycles, require relatively low initial investment, and can be managed alongside household responsibilities. Pigs generate quick returns through rapid growth and high market demand, goats act as a “living bank” that can be sold during financial needs, and poultry ensures frequent income through regular sale of eggs and birds. The integration of these livestock components ensures cash flow at different intervals, reducing economic risk and dependency on seasonal crops. Moreover, the use of locally available feed resources, kitchen waste, and farm by-products lowers production costs and increases profitability. Beyond income, these activities also enhance household nutrition by providing meat and eggs, and empower rural women by improving their decision-making capacity and financial independence. Overall, pig, goat, and poultry rearing play a vital role in strengthening livelihood security, promoting self-employment, and ensuring sustainable, round-the-year income generation for rural farm women.

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