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Self sustainability of young generation through sheep/goat farming: Impact of vocational training

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Abstract

Vocational training allows the participants to prepare for a particular enterprise and is one of the important objectives of the Krishi Vigyan Kendra (KVK) which emphasis on "learning by doing" for reducing the input cost, generating self-employment, enhancing output and to acquire knowledge about the new technologies in agriculture and allied subjects. In view of this, ICAR-KVK, Dharwad conducted three days vocational training programmed on “Scientific sheep and goat farming as economical security” during the years 2017 to 2021. This study was designed with an objective to study the impact of these trainings on knowledge gain and on adoption of animal husbandry practices by participants and average income of sheep and goat farming by the trainees. Totally 280 youth participated in the training programme, among which 11.79 % participants already had sheep and goat farming but were uneconomical and remaining 88.21 % participants were new to this enterprise and wanted to explore sheep and goat farming. In pre evaluation, participants profile and knowledge on scientific sheep and goat management was assessed by setting up questioner and score was given. During the training different subjects of scientific sheep and goat farming including prevention and control of disease, feed and fodder production, record keeping, project report writing, marketing skills, department schemes, bank facilities, records, marketing and project report were taught in the training, along with exposure visits. Pre evaluation study revealed that average 93.01% participants had poor knowledge on these aspects. Among the participants 64.64% were young and 45.71% were degree holders which indicate that sheep and goat farming mainly attracting the young generation for their self-sustainability. On last day post evaluation was done, it has been observed that 97.96% participants had gained tremendous knowledge on these subjects. In impact analysis was studied after six months on adoption of animal husbandry practices, where vaccination (75.71%), deworming (75%), care and management (74.64%) were highly adopted by participants for sheep/goat farming. Also, 76.78% trainees were started their own sheep and goat farming with average income of Rs. 54000/- with unit size of 10 animals. Such vocational trainings along with field exposure play a vital role in exploring the knowledge to enhance the economic status and to attract the rural youths/ farmers towards profitable enterprise through sheep and goat farming by adopting good animal husbandry practices.

Keywords: Vocational training, evaluation, knowledge, enterprise, cost benefit ratio

1. Introduction

Agriculture is major enterprise which is easily affected by climate change, due to rise in temperature and change in weather affecting the crop yield thereby affects food grain availability. Growth of agriculture sector is decreasing by 3% because of all these reasons (Srinivasa R *et al.*, 2019) [1]. To make agriculture economical practicing allied enterprises like animal husbandry, vermicompost, apiary etc. are essential. India is a diversified country with vast livestock diversity which is the integral part of farming system in agriculture. Livestock sector contributes 4.11% GDP and 25.6% of total agriculture GDP. Increase in human population lead to increase in demand for the food and hence 62% of the marginal farmers are associated with livestock farming, which provides livelihood, financial and nutritional security (Shantanu K *et al.*, 2008; Arghyadeep *et al.*, 2020) [2, 3]. Sheep and goats are the small ruminants playing an important role in Indian economy and meeting nutritional demands of the majority of the population. The meat production in the country has increased from 6.69 million tonnes in 2014-15 to 9.77 million tonnes in 2022-23. According to 20th livestock census, India ranks 2nd in goat (148.88 million) and 3rd in sheep (74.26 million) population as compared to world. There is increase in goat and sheep population from 2012 to 2019 as 10.1 % and 14.1 % which indicates huge demand for sheep and goat farming (Arghyadeep *et al.*, 2020) [3]. Sheep and goat farming are one of best profitable enterprise, known as moving ATM. As compared to dairy farming, sheep and goat farming is more economical especially in rainfed regions where crop production is unpredictable (Santra *et al.*, 2020) [4]. Nowadays integration of livestock farming with fish, sheep, goat, pig, rabbit and poultry farming. Among this, integration of sheep and goat farming with poultry farming is gaining more importance and establishing throughout the India, also provides an additional income to the farming community and have more demand as compared to other livestock enterprise (Pattar, 2024) [5].

Vocational trainings play a crucial role in "learning by doing" for higher production, self-employment, reduce the

cost and helping to acquire the new skills. Capacity building trainings are important to improve the knowledge in scientific management practices by farmers and thereby increase in overall production of sheep and goat for sustainable income (Olabode *et al.,* 2018) [6]. Hence, the present study was conducted to analyze impact of vocational trainings on sheep and goat farming conducted by ICAR-Krishi Vigyan Kendra, Dharwad during the year 2017 to 2021 with an objective to analyse the impact of vocational training on knowledge gain, adoption of animal husbandry practices and income of sheep and goat farming by the trainees.

2. Materials and Methods

Based on the need identification of the farmers and youths, ICAR-KVK, Dharwad, conducted seven paid skill development training during the year 2017 to 2021 on "profitable sheep and goat farming for economic security" with duration of three days. Totally 280 farmers, farm women, employees and unemployed youths were participated in these training programs. The purposive sampling method was followed. Pre tested interview schedule was used to collect the data. During three days, series of lectures on importance of sheep and goat farming in integrated farming system, breeds and breeding methods, selection of animals and medicinal importance of sheep/goat milk, care and management, housing systems, feed and fodder production, prevention and control of diseases, de-worming, plastic hazard, marketing, record keeping, project preparation, facilities and schemes available in animal husbandry department and bank, insurance facilities, advance technologies in feeding and breeding were arranged. Method demonstrations on azolla, silage preparation, concentrate feed and vermicompost preparations were demonstrated. Exposure visits to progressive farmer's sheep and goat units, who running the successful sheep and goat farming were arranged to encourage the participants. Pre and post tests were conducted to check the knowledge gain and impact of training. Suitable statistical tests were conducted to analyse the data.

2.1 Pre evaluation study

Before the training, pre evaluation study was assessed by setting up the questionnaire on scientific sheep and goat management, experience in farming, breeds and breeding methods, feed and fodder, disease, advance technologies, waste to wealth, green and dry fodder conservation, insurance, schemes and facilities by department of animal husbandry and bank, with objective to evaluate the knowledge on sheep and goat farming (Table No. 2). . Also, the data on participant's profile like gender, age, education, already practicing or not practicing were collected and all these data were interpreted with frequency and percentage (Table No. 1).

2.2 Post evaluation study

After the training, post evaluation study was conducted on the last day of training session with the help of a questionnaire related to sheep and goat farming mainly to evaluate the knowledge gain on these aspects and score was given (Table No. 2).

2.2.3 Impact analysis

After six months of each training organized, the impact of training was analyzed to know about the impact of training in terms of establishment of sheep and goat farming by the trainee's percentage of adoption of animal husbandry practices by participants and average income were calculated.

3. Results and Discussion

3.1 Pre evaluation study

In the pre evaluation study the profile characteristics were analyzed (Table No. 1). Among the trainees about 97.14 percent were male and remaining were female i.e., 2.86 per cent (Fahad O. A., 2018) [15]. The age-wise categorization shows that most of the trainees were young (64.64%) followed by middle and old age. The information on education of the trainees depicted that 45.71 per cent of them were degree holders, 27.86 percent had completed their PUC. Only 6.07 per cent had primary education. The trend might be because of the volatile nature of service sector for degree holders and good earning that might be possible through sheep and goat farming. In the present study pre evaluation test showed that young people participated in these training program which shows young generation is most interested and want to have self-sustainability through this enterprise which might be due to the success stories heard from progressive farmers and not getting suitable job. They might be in search of the enterprise which is remunerative but not labour oriented like dairy sector. Sheep and goat farming are one among this remunerative enterprise which is less labour oriented, easy management and market is nonvolatile. The present study supported by author Pattar *et al.,* 2023 [7] who recorded success story of graduated young youth who started integrated sheep and goat cum poultry farming as an enterprise and fetching good income.

The experience about sheep/goat farming in the particular enterprise also plays a very important role in attending the training programmed. Among the trainees who already having sheep and goat unit, they were un successful due to un scientific management practices. About 11.79 percent were practicing sheep/goat farming and wanted to experience the scientific methods to improve the profitability in the enterprise, remaining 88.21 percent were new to the field and never had experience of sheep and goat rearing activity.

Many of the participants were landless (46.78%) and marginal farmers (38.92%) who had much interest to take part in the training programme even though it was paid programme. This might be because of the fact that they wanted to have one subsidiary occupation which is less labour oriented, easy to manage and remunerative and the type of farming also plays a major role in selection of subsidiary occupational sources for sustainability

In this study it was observed that majority of the farmers 60.40% were practicing rainfed agriculture and 39.60 % trainees had irrigated land. As agriculture dependent on climate change which affects the crop production and productivity, thereby affects income, (Muhammad HR *et al.,* 2022: Hannah R, 2024) [8, 9]. Sheep and goat farming are more profitable, many farmers might be in search of a enterprise which can be practiced along with agriculture and less dependent on monsoon season and to get sustainable income (Pattar *et al.,* 2023) [7].

Table 1: Profile of the trainees n=280

Variables	Category	Frequency	Percentage
Gender	Female	8	2.86
	Male	272	97.14
Age	Young	181	64.64
	Middle	79	28.21
	Old	20	7.14
Education	Primary school	17	6.07
	High school	57	20.36
	PUC	78	27.86
	Degree and above	128	45.71
Experience	Practicing	33	11.79
	Non practicing	247	88.21
Land	Landless	131	46.78
	Marginal (up to 1 hectare)	109	38.92
	Small farmer (>1 up to 2 hectare)	40	14.28
Source of water	Irrigation	59	39.60
	Rain fed	90	60.40

The results of pre evaluation study were presented in the Table no.2 which indicates knowledge of the trainee related areas. In the pre evaluation study, it was found that 97.50% trainees had poor knowledge on scientific animal husbandry practices which includes knowledge about breeds, breeding methods, advance technologies of rearing, care and management. Poor knowledge was also observed regarding knowledge on prevention and control of disease (97.14%), record keeping (96.07%), project report writing (95.72%), marketing skills (96.79%), schemes and financial benefits (96.43%), also it was found that 71.42 % were having poor knowledge on feed and fodder production. Most of the trainees fell under poor knowledge category. This might be because of the fact that majority were new to the enterprise.

3.2 Post evaluation study

The results of post evaluation study were presented in the Table no.2 and which shown remarkable increase in their knowledge on scientific animal husbandry practices (98.57%), prevention and control of disease (98.93%), feed and fodder production (94.64%), record keeping (98.22%), project report writing (99.28%), marketing skills (97.87%), schemes and financial benefits (98.22%) which might be because of demonstrations, hands on training and field visit. These findings were supported by the many authors who conducted pre and post evaluation study of sheep and goat farming training in different regions of India all the authors found a remarkable change in the knowledge about sheep and goat farming related to breeds, care and management, feed, fodder and disease control in post evaluation study as compare to pre evaluation study. Among the authors Dixit *et al*., (2014) [10] who studied the impact of training programmed on the knowledge of the trainees participated in the scientific goat farming training programme at Central Institute for Research on Goats (CIRG). Belakeri et.al., (2017) [11] who evaluated the training programme organized by the department of veterinary and animal husbandry extension education of veterinary college Hebbal, Bengaluru, and the author Santra B *et al* (2020) [4] who conducted the pre and post evaluation study of sheep and goat training among the farm women of Sundarban of West Bengal.

Table 2: Comparison between knowledge of trainees about sheep and goat enterprise before and after vocational training

Parameters studied	Poor (%)		Medium (%)		High (%)	
	Before	After	Before	After	Before	After
Scientific animal husbandry practices	97.50	0.36	1.42	1.07	1.08	98.57
Prevention and control of disease	97.14	0.71	1.78	0.36	1.08	98.93
Feed and Fodder production	71.42	2.14	11.44	3.21	17.14	94.64
Record keeping	96.07	0.71	2.51	1.07	1.42	98.22
Project report writing	95.72	0.36	2.86	0.36	1.42	99.28
Marketing skills	96.79	0.71	2.14	1.42	1.07	97.87
Schemes and financial benefits	96.43	0.71	2.86	1.07	0.71	98.22
Average	93.01	0.81	3.57	1.22	3.42	97.96

3.3 Impact analysis

In the impact analysis, it was found that 76.78% trainees were established the sheep and goat farming and adopted the different animal husbandry practices those already practicing have upgraded the existing unit. Vaccination (75.71%), Deworming schedule (75.00%), Care and management (74.64%), Sheep and Goat breeds (68.57%), Breeding methods (66.79%), Feeding of concentrate mixture (64.64%), Silage feeding (58.21%), Cultivation of non-leguminous fodder (47.14%) and leguminous fodder (33.21%), Azolla feeding (30%) were the highest animal husbandry practiced by the trainees. Value addition to milk (9.29%) and Vermicompost (3.92%) were the minor animal husbandry practiced by the trainees (Table No. 3 and Figure.1). Remaining 23.21percent trainees have not started the sheep and goat farming enterprise which might be due to many reasons like financial crisis, labor availability, land issue etc (Fig.2).

Table 3: Impact analysis on adoption of Animal husbandry practices by participants and economy

Category	Adoption level	
	Frequency	Percentage
Total participants who established sheep/Goat farming	215	76.78
Unit Size of Sheep and Goat farming • 05-20 • 20-50 • 50-100 • 100-500 • > 500	 68 52 46 32 17	 31.62 24.18 21.39 14.88 7.70
Sheep and Goat breeds	192	68.57
Breeding methods	187	66.79
Feeding of concentrate mixture	181	64.64
Cultivation of Non-leguminous fodder	132	47.14
Cultivation of leguminous fodder	93	33.21
Care and management	209	74.64
Azolla feeding	84	30.00
Silage feeding	163	58.21
Deworming schedule	210	75.00
Vaccination	212	75.71
Value addition to milk	26	9.29
Vermicompost	11	3.92
Elevated stall-fed housing	35	16.27
Semi intensive housing	138	64.18
Grazing	42	19.53
Bank loan beneficiaries	57	26.51
Average income per year (unit size 10 animals)	Rs.54000/-	

In the present study, impact on housing system it was observed that 16.27% and 64.18% participants were established the elevated stall-fed housing and semi intensive housing respectively, remaining 19.53% were dependent on grazing system. 26.51% participants were benefitted by the bank loan facility for establishment of sheep and goat farming. In the economic study it was observed that, average income of unit size of 10 animals was Rs.54000/- per year.

The present study findings on adoption of animal husbandry practices by the participants were supported by Belakeri *et.al.*, (2017) [11] reported from their study that highest knowledge gain was found in fodder production (70.36%) aspect as various fodders were demonstrated in fodder museum along with instruction. Further, mean knowledge gain regarding health care management (61.33%), housing management (60.60%), feeding practices (51.60%), breeds & breeding management (59.26%), general care and management (53.06%) were observed in decreasing order among the trainees. Similarly, Senthilkumar *et al.*, (2014) [12], conducted an impact study in five blocks of Namakkal district of Tamil Nadu on small and marginal goat farmers who participated in Goat rearing and feeding management training programme at Krishi Vigyan Kendra. The findings revealed that the farmers had gained significant knowledge in housing, in breed awareness, vaccination, deworming, fodder production, feed composition and techniques after training. The present study was supported by Santra *et al.*, (2020) [4] who found highest level of adoption percentage for housing (72.97%), breed (64.48%), vaccination (62.42%), deworming (59.46%) and least adoption percentage in azolla feeding practices (16.47%). Mahesh *et al.*, (2020) who observed that the trainees gained knowledge on types of different breeds of sheep and goats (53.65%), sheep and goat shelter (51.74%), Feed and fodder (49.13%) and animal health maintenance (61.66 %) after training. 63 % of trainess have adopted the technologies learnt in the training by newly starting sheep and goat enterprises or expanding the existing unit to improve their economy. Also Meena *et al.*, (2022) [14] who studied the adoption of improved goat husbandry practices among Raika Pastoralists of Rajasthan and observed that adoption of improved kid husbandry (98.73%), mineral mixture supplementation (51.90%) and housing practices (46.84%) where Raika community must be educated about improved goat husbandry practices and participate in scientific goat husbandry training programmed for better adoption of all animal husbandry practices to improve their economic status.

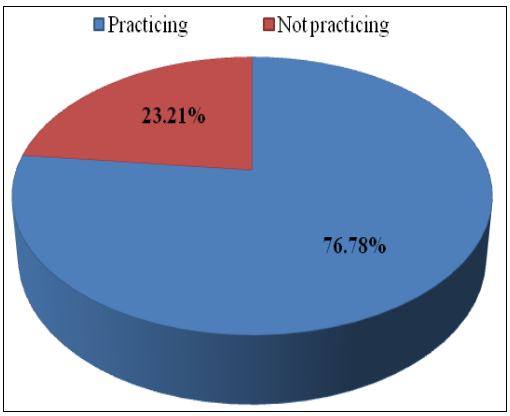

Fig 1: Percentage of Trainees practicing sheep and goat farming

4. Conclusion

To conclude, results of impact analysis of vocational training revealed that majority of the young male, degree holders were the participants. Most of them wanted to have financial security through sheep and goat farming. The

investigation revealed that sheep and goat farming is comparatively more profitable than other livestock subsidiary income source. Such vocational training programmes will helps to improve the necessary knowledge and skills of trainees. Thereby helps in reducing the cost, mortality of animals, enhance the economic status and self-empowerment of farmers and rural youth. It is recommended that strengthening of extension professionals and training system has to be done for taking up more training programmes to make the farmers knowledge rich, which in turn leads to adoption of scientific rearing practices. The experience with suitable knowledge might bring higher profits in the future.

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