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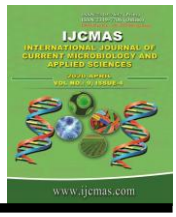

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Impact of Sheep and Goat Rearing Skill Training on Knowledge Gain and Adoption of Technologies

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A B S T R A C T

The present study was undertaken with an objective to assess the impact of skill up gradation training on knowledge gain and adoption of technologies in Sheep and Goat rearing. Six trainings were organized by Krishi Vigyan Kendra, Bagalkote during the year 2018-19 and 2019-20. The participants were farmers, farm women and youths who have interest in sheep and goat rearing as self-employment. Different aspects of sheep and goat rearing in the context to selection of suitable breeds, Animal shelter, Feed and fodder and Animal Health were imparted to a total number of 173 trainees in six trainings. The impact of the training was assessed by pre and post evaluation testing in terms of improvement in knowledge for different parameters. It was observed that 53.65, 51.74, 49.13 and 61.66 per cent of the trainees gained knowledge on types of different breeds of sheep and goats, sheep and goat shelter, Feed and fodder and Animal Health maintenance after training. Sixty three per cent (109 trainees) of them have adopted the technologies learnt in the training by newly starting sheep and goat enterprises or expanding the existing unit and in that 47.4 percent started with ram fattening. It may therefore, be concluded that trainees succeeded in acquiring knowledge after exposure to training and also adopting technologies on sheep and goat rearing.

Introduction

Agriculture and Animal husbandry are two faces of single coin. The integration between agriculture and animal husbandry lead to production of milk, meat, egg and other animal products which are economically profitable to farmers in all the regions. The symbiosis between agriculture and animal husbandry is an economically profitable activity to the farmers as well as the life thriving to the land resources. Sheep or Goat is considered as 'ATM for farmers', whenever they require money, they can sell the stock and furnish their needs. Sheep/goat rearing is a source of livelihood in the drought-prone rural areas of India (Belakeri *et al.,* 2017). One of the important resources in the

economic development of the country is Livestock sector. Generally economic development indicates to a process of upward changes of human resources which can be improved through increasing knowledge and attitude level of the rural stake holders. In human resource development capacity building is the crucial input.

This capacity building may be in agriculture, animal husbandry, fisheries or any other field for bringing out desirable changes in human behaviour (Biswas *et al.,* 2008). Training acts as a basic platform for acquisition of knowledge, skills and competencies in the respective field.

Training had positive impact to the farmers' knowledge level, perception and performance (Senthilkumar *et al.,* 2014). Bagalkot district is situated in Northern dry zone of Karnataka (Zone-3), it is blessed with three command areas namely Malaprabha, Ghataprabha and Krishna, with net irrigated area of 212872 ha, which constitutes around 45.3% of net sown area.

Therefore there is large scope for animal husbandry activities in the district. Already the district has made a dent in livestock production, milk production. The climate is warm and dry throughout the year and rainfall is inadequate, but small ruminants like sheep and goats tolerate warm and dry climate than the crossbred cattle. As per the statistics of the livestock census 2011, district ranks at 2nd place in buffaloes, 18th in crossbred cattle, 10th in indigenous cattle and 4th largest in sheep and goat population in the state.

The main problems faced by the farmers of Bagalkot district in sheep and goat rearing are low gain in body weight, fodder scarcity, disease outbreak due to lack of knowledge on proper vaccination, infertility problems, kids and lamb mortality.

Materials and Methods

Selection of participants

The study was conducted at ICAR Krishi Vigyan Kendra, Bagalkote. KVK conducted trainings on scientific methods in sheep and goat rearing in which Scientific feeding methods, importance of legume fodder, method demonstration on green fodder preservation by silage making, selection of breeds and up gradation, different diseases and vaccination, importance of regular deworming, management of Ecto parasites, Management of kids and lambs and method demonstration on usage of progesterone sponge for synchronization of estrous. Two paid trainings and training sponsored by MANAGE conducted in the year 2018 (Table 1). Information regarding trainings given through mobile SMSs and newspapers. The training programs were focused on farmers, farm women and rural youth for those who have interested in self-employment. Totally 173 farmers participated.

Tool for data collection

To test the knowledge of trainees, a set of 10 questions related to fodder, feeding, breeds, Diseases, Vaccination and management etc. were prepared and used. Hence, gain in knowledge was calculated from the difference of scores obtained in pre and post knowledge test of the trainees. Feedback from all the participants was collected through telephone and through field visits and contact farmers.

$$\text{Gain in Knowledge} = \frac{\text{Post-training evaluation score} - \text{Pre- training evaluation score}}{\text{Pre- training evaluation score}} \times 100$$

Collection of data

Pretest was conducted to know the level of knowledge of participants regarding feeding methods, legume and non-legume green

fodder, fodder preservation, breeds selection and up gradation, different diseases and vaccination, deworming, ectoparasites, Management of kids and lambs etc. Thorough training on various aspects of Sheep and goat rearing was imparted during the training program. Similarly, after completion of the training course, post evaluation was performed in order to assess the knowledge gained by the trainees and effectiveness of training.

Adoption

Adoption rate was calculated by contacting the trainees after three months of completion on adoption of various skills learnt from starting or expanding existing sheep and goat enterprise.

Results and Discussion

Socio-economic profile

The trainees differed in their socio-economic status based on education, occupation, landholding and annual income etc (Table 2). The results revealed that 78.04 per cent of the trainees were male whereas 21.96 percent were female. The age of trainees was between 18 to 58 yr. Majority of the trainees 50.29% were in age group of 31-50 whereas 29.48 per cent were below 30 yr and 20.23 per cent were above 50 yr of age. Information with respect to caste showed that 73.99 per cent of the trainees belong to Backward Caste followed by Scheduled caste (16.76%).

Assessment of the trainees with respect to formal education indicated that 27.17 per cent studied up to middle level followed by SSLC (24.86 %) and PUC/Diploma holders (19.65%). Information with respect to occupational background revealed that 72.25 per cent of the trainees are farmers followed 13.30 percent of trainees belonged to business category and only 5.20 per cent belonged to housewives. It was found that, 87.43 per cent of the trainees were below poverty line, 12.57 per cent of them come under above poverty line.

Increase in level of knowledge

Prior to and post training scores were computed for all the sub-components of sheep and goat training. In pretest, the knowledge range of different participants was 13.30 per cent regarding the different diseases and symptoms to 56.07% percent in Normal/ traditional shelter. Post evaluation training score of various practices ranged from 80.35 per cent in Normal/ traditional shelter to 95.38 per cent in selection of suitable breeds that to regarding Deccani Sheep. From the knowledge scores it was clear that, trainees enhanced the horizons of their knowledge on various aspects of sheep and goat rearing. Sufficient gain in knowledge regarding sheep and goat training was recorded for sub-components *viz.*, Selection of suitable breeds (Osmanabadi, Sirohi, Yalaga, Kenguri, Deccani Goat), Animal shelter (Normal/ traditional shelter and Elevated floor model), Feed and fodder (Cultivation of perennial grass, Cultivation of perennial legumes and Silage making) and Animal Health (Different diseases and symptoms, Vaccination and Deworming).

It was observed that average 53.65 per cent of the respondents gained knowledge on different breeds of sheep and goats after training, whereas average 51.74 per cent of the trainees exhibited high knowledge on sheep and goat shelter after training (Table 3). While, average 49.13 per cent of the respondents were scored better in knowledge on Feed and fodder (Cultivation of perennial grass, Cultivation of perennial legumes and Silage making) in sheep and goats after training. It was revealed that 61.66 per cent of

the trainees were deviating knowledge on Animal Health (Different diseases and symptoms, Vaccination and Deworming) after training (Table 3). It may therefore, be concluded that trainees succeeded in acquiring knowledge after exposure to training on Sheep and goat rearing.

The results were similar to the findings reported by Belakeri *et al.*, (2017), they also found that significant gain knowledge in fodder production, health care management, housing management, feeding practices, breeds & breeding management, general care & management were observed in decreasing order among the sheep and goat trainees in Bangalore.

Senthilkumar *et al.*, (2014), conducted a 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. These findings were in consonance with our study.

These findings were in accordance with Rajesh K *et al.*, (2013) where they conducted animal husbandry training among farmers interest groups (FIGs) in the state of Tamil Nadu. They also found that significant difference in the knowledge level of the respondents before and after animal husbandry training among farmers.

Aparna and Hundal (2016) conducted specialized trainings on dairy farming; trainees that exposed were significantly high on knowledge score on breeding, feeding and management aspects after training. Noor and Dola (2011) also found that training had positive impact to the farmers perception and performance.

Kavitha *et al.*, (2013) also found that gain in the knowledge level after the training on mushroom cultivation in Kanyakumari district of Tamil Nadu. Rachna *et al.*, *(2013),* reported that exposure to training increased the knowledge of farmers, farm women and youths. Nagaraj *et al.*, (2017) also observed that 71.43 per cent of the trainees were deviating knowledge after training.

Table.1 Trainings programmes conducted in KVK Bagalkote

Sl. No.	Name of the Training Programme	Duration with dates	Place	No. of Participants
1.	Sheep and Goat rearing training	2 days	KVK	**143**
2.	Scientific Sheep and Goat rearing training	6 days	KVK	**15**
3.	Modern Methodologies in Sheep and Goat rearing	3 days	KVK	**15**
4.	Fodder Lucerne production technologies	1 day	KVK	**25**
5.	Indigenous progesterone sponge in synchronization of estrous in sheep	1 day	Kagalgomba	**30**
6.	**Preservation of Green fodder by silage making**	**1 day**	**Bavalatti**	**30**

Table.2 Socio-economic profile of trainees (n=173)

Sl. No	Particular	Trainees attended Sheep and goat rearing	
		Frequency	Percentage
1	**Gender**		
	Male	38	**21.96**
	Female	135	**78.04**
2	**Age**		
	Up to 30 yr 31-50 yr	51	**29.48**
	Above 50 yr	87	**50.29**
		35	**20.23**
3	**Caste**		
	Scheduled caste	29	**16.76**
	Backward Caste	128	**73.99**
	Others	16	**9.25**
4	**Education**		
	Primary	29	**16.73**
	Middle level	47	**27.17**
	SSLC	43	**24.86**
	PUC/Diploma Graduate	34	**19.65**
	Postgraduate	17	**9.83**
		3	**1.73**
5	**Occupation**		
	Farmer	125	**72.25**
	Business	23	**13.30**
	Housewife	9	**5.20**
	Others (Retiree, student)	16	**9.25**
6	**Annual income**		
	BPL	153	**87.43**
	APL	20	**12.57**
7	**Landholding**		
	Landless Marginal(<1 ha)	**18**	**10.40**
	Small (1-2 ha)	**39**	**22.54**
	Semi medium (2-4 ha)	**47**	**27.17**
	Medium (4-10 ha)	**58**	**33.53**
	Large (>10 ha)	**8**	**4.62**
		3	**1.73**

Table.3 Gain in knowledge by trainees (n=173)

Knowledge /Activities on Sheep/goat rearing	Pre evaluation training score	Post evaluation training score	Percentage gain in knowledge
1. Selection of suitable breeds			
1. Osmanabadi Goat	75 (43.35%)	161(93.06%)	49.71
2.Sirohi Goat	60(34.68%)	149(86.13%)	51.45
3.Yalaga Sheep	69(39.88%)	163(94.22%)	54.34
4. Kenguri Sheep	53(30.64%)	154(89.02%)	58.38
5. Deccani Sheep	45(26.01%)	139(80.35%)	54.34
Average	60.40(34.91)	153.2 (88.56)	53.65
2. Animal shelter			
1.Normal/ traditional Shelter	97(56.07%)	165(95.38%)	39.31
2.Elevated floor model	47 (27.17%)	158(91.33%)	64.16
Average	72 (41.62)	161.5 (93.36)	51.74
3. Feed and fodder			
1.Cultivation of perennial grass	89(51.45%)	153(88.44%)	36.99
2.Cultivation of perennial legumes	56(32.37%)	151(87.29%)	54.91
3. Silage making	45(26.01%)	141(81.50%)	55.49
Average	63.33 (36.61)	148.33 (85.74)	49.13
4. Animal Health			
1. Different diseases and symptoms	23(13.30%)	145(83.82%)	70.52
2. Vaccination	52(30.06%)	141(81.50%)	51.45
3. Deworming	48(27.75%)	157(90.75%)	63.01
Average	41(23.70)	147.67(85.36)	61.66

Table.4 Adoption of technologies by trainees

Particulars	No of farmers	Percentage (%)
No of Farmers trained	173	-
No of farmers newly started S/G Enterprise	78	45
No of animals 5- 20	33	42.3
20-50	23	29.5
50-100	16	20.5
>100	6	7.7
Expansion/improvement of earlier S/G Enterprise	31	18
Bank loan benefited	29	16.76
Ram fattening farms (Male sheep rearing)	82	47.40
Animal shed with Elevated floor	6	3.47
Gross and legume fodder cultivation	42	24.28
Silage making	27	15.60
Avg. net Income / yr (For 10 animals)	Rs. 30,000/-	-

Adaption studies

In the total 173 trainees 63% (109 trainees) have adopted the technologies learnt in the training by starting new sheep and goat enterprises or expanding their earlier sheep and goat enterprises. In that 45% were newly started the sheep and goat enterprise and remaining 18% were extended earlier sheep and goat enterprise (Table 4).

Through it is not complete adoption majority practiced vaccination, breed selection, shed construction and fodder cultivation. In newly started the sheep and goat enterprise, 42.3 percent started with small scale unit ranging from 5 to 20 animals. 29.5 percent of trainees started with medium scale ranging from 20 to 50 animals. Nearly 20.5 percent of trainees started with medium scale ranging from 20 to 50 animals. About 7.7 percent of trainees started with medium scale ranging from more than 100 animals (Table 4).

Interestingly 47.4 percent started with ram fattening, i.e., rearing lamb aged 3-4 months and rearing up to 10-12 months. It's an 'all in and all out' system means all the animals purchased in the same lot and sold at once (Table 4). The impact of trainings in adoption of fodder crops has also been supported by the sale of fodder cuttings and azolla culture.

Nearly 30000 fodder cuttings (DHN-6 and CO-4) which is sufficient for two ha and 145 kg azolla culture has been given to the farmers. The fodder and azolla they carry is also for self-propagation.

Senthilkumar *et al.*, (2014), also found that adoption of trainees of goat rearing training were 25.0% housing system, 20.0% Breed, 36.0% deworming and 30.5% Green fodder production**.** The results were also in agreement with Biswas *et al.*, (2008) who reported on the effect of training on advanced dairy farming practices and indicated that there was a significant level of adaption in deworming, artificial insemination and vaccination as a result of training.

It can be inferred that the training program had an impact in terms of knowledge gain and adaption on scientific practices of sheep and goat rearing. In future day livestock sector has to meet huge demand of meat and its other

products in local, national and international markets. This needs propagation of scientific and recent technologies in to sheep and goat rearing farmers. In this aspect training played important role and it is recommended to conduct more training programmes to make farmers more skilled and knowledgeable.

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