ADOPTION OF GOAT PRODUCTION TECHNOLOGY AND ITS IMPACT AMONG RURAL FARMERS IN NAWALPARSI DISTRICT OF NEPAL

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SUBMISSION TRACK

Recieved: Oct 8, 2018
Final Revision: Nov 26, 2018
Accepted: Jan 11, 2019

ABSTRACT

Nayabelhani VDC of Nawalparasi district was chosen to judge the effectiveness of goat production technology supported by Heifer International Nepal. Field su[illegible]with before and after approach was employed i[illegible]he st[illegible]. Information obtained from Stratified rando[illegible] sampli[illegible] technique from 90 households [illegible]with [illegible]ctur[illegible] questionnaire and was compared [illegible]n the [illegible]aseli[illegible]ata. Adoption index was calculated [illegible]roc[illegible]oring technique after content validation. Pa[illegible]ipatory [illegible]ral [illegible]praisal for problems identification. [illegible]e [illegible]earch r[illegible]ealed that the extent of adoption of [illegible]ientific g[illegible] production technology after project was h[illegible]her than befor[illegible]roject (80% Vs 32%, P<0.01). Further, [illegible]e averag[illegible]erd size after the project was slightly decreased [illegible]om 6.[illegible]5 to 5.677 while the kid mortalit[illegible]ped fr[illegible]to 11%. The average number of kidding i[illegible] ye[illegible]as increased from 2 to 3 and the average n[illegible]ber o[illegible]d[illegible]er k[illegible]ding was increased from 1 to 2. Goats wer[illegible]more[illegible]equently marketed at an average age of 12 mo[illegible]ns wit[illegible]n average weight of 24kg after the project. [illegible]nnal[illegible], [illegible]he average annual income from the goat per [illegible]sehold was found to be almost doubled from Nrs. 8,489 to [illegible]rs. 15,084. Predator was found to be the most serious problem out of seven identified problems.

KEYWORDS

Technology adoption, [illegible]al livelihood, Goat production

INTROD[illegible]ION

[illegible]epales[illegible] farmi[illegible]ystem is mixed where crops [illegible]d[illegible]1[illegible] forms a major constituent. Agricult[illegible] play a pivotal role in economic developm[illegible] and contributes approximately 33% in national GDP and the livestock sub-sector of agriculture contributes 26% of the total AGDP (MoAD, 2014). Among various livestock subsector goat farming holds the major portion in sustaining the rural life. About 49.8% of the rural people rare goat as a living bank because it can be liquidate whenever necessary (CBS, 2014). Goat in recent years has been recognized as one of the most important livestock commodities that have widely been adopted for poverty alleviation, livelihood enhancement and food and nutrition security in Nepal (Rota & Sidahmed, 2010). The importance of goat has increased significantly in recent years as a means of poverty alleviation program of Government of Nepal. Four types of indigenous goat breeds identified in Nepal (Khanal, Rasali, Dhaubhadel, Joshi, & Karki, 2005; Shrestha, 1996) such as Khari, Chyangra, Sinhal and Terai goat, other breeds Jamunapari, Beetal, Barbari, Kiko, and Saanen have been introduced and crossbred (Upreti & Mahato, 1995). Terai and Khari goat represent about 20% and 56%, respectively are being imported annually from neighboring country constituting 15% of the goat market (Gorkhali, Shrestha, Shrestha, & Pokharel, 2011). Despite a sizeable population of National goat herd, it is still not sufficient to meet the requirement of the nation and more than 0.5 million live goats. This is primarily due to the subsistence nature of goat farming in the country. The main

reasons for the stagnation of the goat enterprise in Nepal are unscientific management practices, improper breeding, lack of nutrition and problem related to the health and marketing management (HIA, 2012). In order to make the goat rearing profitable enterprise, technologies have been developed and diffused by the various governmental and non-governmental organizations around the nation. Such improved practices have not been adopted by the farmers so far. Therefore proper adoption of these improved technologies by the goat farmers will be the only means to hasten the further development of this sector. This study seeks to judge the effectiveness of goat production technology supported by Heifer International Nepal in terms of extent of adoption and its impacts among the beneficiaries.

METHODS

Study Area and Sample Size

Nayabelhani VDC of Nawalparasi Distri was purposively selected to study the impact adoption of goat production technology. A fie survey was conducted in Jan 2016. Altogether 90 households (10 f n each wards) were taken using stratifie ran technique. A co-ord tion s ma was prepared and the i rm on were llected with the struct d questi aire and it was compared w the baseline ta from the secondary s ce. irsthand information was obtai by fa to face terview based on pre-st ture qu naire, focal group d ssi (FGD) and key informant. Sec ary data was taken from DADO Nawal asi, books, internet along with reports of different INGO/NGOs. The pre-testing of questionnaire was done on 5 households of Gaidakot municipality and correction was made in finalized questionnaire. Participatory Rural Appraisal (PRA) was conducted for problem analysis. After, collection of primary data from the field survey was entered in MS-Excel version 2010. Different statistical tests were done whenever appropriate. The analyzed data was presented by using text, table, graph and pie-charts with the help of MS-Excel, SPSS version 20.

Methodological Approach of Impact Evaluation

Before and after approach was employed and paired t-test was done for the study of extent of adoption of goat production technology. Information before the project like housing, feeding, breeding, health, care and management were compared with the information after the project for impact evaluation.

Level of Technology Adoption

First of all content were valida m the experts and score was allott to di ent technology by the techniques scoring he extent of technology a ption w calcu ted by using the formula

$$\text{Extent of adoption} = \frac{\text{Score obtained by the respondent}}{\text{total score alloted}} \times 100$$

RE LT AND DISC SION

Ex nt of Ad tion

ig. 1 owed the overall extent of adopti goat production technology after roject (80%) was significantly higher than before project (32%). Further generalization showed that extent of adoption of housing technology after the project (65.61%) was significantly higher than before project (40.21%). Similarly, 73.75% of feeding technology was adopted after the project which was found significantly higher than before project (48.79%). Further the extent of adoption of breeding, health and care and management technology were 82%, 97.67%, 79.31% which was found significantly higher than before project respectively which is shown in figure 1. This significant increase in extent of adoption after the project was due to facilitation of the trainings, arrangement of farmer field tour and supply of the short term credit to the farmers. Trainings and farmers field tour increases the farmer's ability to acquire, analyze and use the information relevant to the adoption of agriculture technology (Koirala, Dutta, Dhakal, & Pant, 2018; Joseph, 2008) and also it makes people more change prone and realize the importance and benefits of adopting new technology whereas supply of credit makes the farmers financially strong to adopt the new innovation (Margaret & Kariuki, 2012). We conclude that

extent of adoption of goat production technology after the project run by Heifer international project lead to positive impact among the farmers.

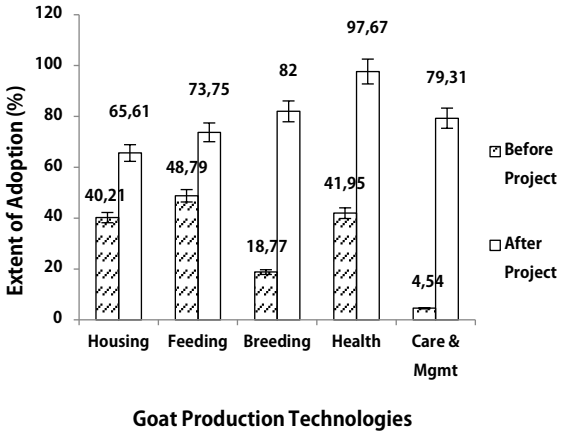

Fig 1. Extent of adoption of goat production technology before and after project

Impact of Adoption

Table 1 showed the impact of adoption of goat production technology. The research revealed that with the adoption of goat production technology after the project the average herd size was decreased from 6.585 to 5.677. The decrease in herd size was m[illegible]due to the selection of the best perfo[illegible]ng g[illegible]ts from the herd and also due to [illegible]or[illegible]ec[illegible] marketing of the goats. Th[illegible]major p[illegible]blems identified was the occu[illegible]ne[illegible]of the pr[illegible]tor which cause the far[illegible]rs reluc[illegible]t to increase their herd size. [illegible]milarly after th[illegible]project the kid mortality w[illegible]dec[illegible]sed from 15% to 11%, average n[illegible]ber [illegible]kiddin[illegible]in 2 years was increa[illegible]fro[illegible]2 to [illegible]ne average number of ki[illegible]per l[illegible]ding wa[illegible]increased from 1 to 2. The av[illegible]e sel[illegible]age of the goat before the project w[illegible]17 months whereas after the project it was 12 months. Similarly, the average annual income from the goat per household was increased from Nrs. 8,489 to 15,084 after the project. The increase in annual income was due to increased number of marketable goats and the increased price of the live goat.

Problems Associated with Goat Production and Their Mitigation Strategy at Farmer Levels

Table 2 showed the PRA result of goat producer problems and mitigation study. From the problem ranking tool PRA it depicts that occurrence of predator was found t[illegible]the most serious problems faced b[illegible]the g[illegible] keepers followed by year round [illegible]rtage [illegible] fodder and forage, diseases[illegible]gh kid [illegible]rtalit[illegible] abortion of the pregn[illegible]does[illegible]igh [illegible]of treatment and lack o[illegible]gra[illegible]ea respectively. Nayabelhani VD[illegible]lies n[illegible]th[illegible]Chitwan National park[illegible]h[illegible]loss m[illegible]by predators like Tiger, Jackle etc. [illegible]mitigate the predators proble[illegible]Shepherding,[illegible]rrangement of the locall[illegible]made sir[illegible]s, reducing the flock size, comm[illegible]ity leve[illegible]surance were practiced.

CO[illegible]USION

Application of innovation is one of the [illegible]ramount means of increasing productivity [illegible]rimarily in subsistence farming where factors of production are highly scarce. The findings decision is strongly influenced by trainings facilitated, arrangement of farmer field tour, supply of credit. Further project interventions has decreased the kids mortality and increase the number of kidding and kids per kidding as well as the income of the rural farmers. This depicts that the goat production technology has brought effective change in

Table 1. Impact of adoption of goat production technology

Parameters	Before Project	After Project
Average Herd Size	6.585	5.677
Kids Mortality	15%	11%
Average number of Kidding in 2 years	2	3
Average number of kids per kidding	1	2
Average Selling Age	17 months	12 months
Average Selling Weight	24kg	24kg
Annual income from the goat per household	Nrs.8,489	Nrs.15,084

Table 2. Problems associated with the goat production and their mitigation strategies at farmer levels

Problems Associated with goat production	Rank	Mitigation strategies at farm level
Year round shortage of fodder and forage	II	Planting of the perennial fodder in the bunds of field and the public area
Diseases	III	Reducing the flock Size Regular medication Regular Vaccination and de-worming Regular cleaning of the goat shed
Predator	I	Shepherding Arrangement of the locally made sirons Reducing the flock size Community level insurance
High kids mortality	IV	Care and management of the pregnant doe Care and management of the newly bo kids
Abortion of the pregnant does	V	Arrangement of the separate stall f pregnant d
Lack of grazing area	VII	Grazing in crop after math
High cost of treatment	VI	Loan from the farmers grou

rural livelihood through adoption and such interventions should be replicated elsewhere.

ACKNOWLEDGMENT

Authors were grateful IAAS Camp family, Heifer International and Nepa respondents of Nayabelhani VDC uable and genuine support and infor tion.

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