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Effectiveness of Farmer's Training in Nepal: A Review

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Abstract

Farmer's training is a method of agricultural extension service delivery. This paper through a thorough review of literature aims to access the effectiveness of farmer training programs in Nepal for transfer of knowledge, creation of awareness, adoption of improved practices and technologies, and improvement in farmer efficiency and farm productivity.

Keywords Adoption, Awareness, Efficiency, Knowledge, Productivity

Introduction

Training can be defined as any process that results in enhancement of an individual's knowledge, understanding and skills aiming to elevate their personal efficiency and efficacy within their job responsibilities (Michael & Koyenikan, 2020). Education and training both are learning processes; however training is different from education in the sense that education aims to prepare people for future roles while training is supposed to give knowledge and skills that people may spontaneously apply to their use in their current roles (Dongol, 2004). Human Resource Development (HRD) is an important strategy in realizing a nation's developmental vision. Training stands as an essential requirement for HRD, as well as for the growth and modernization of economies worldwide (Wallace, 1997).

Training is concerned with engaging and empowering the farmers (Suvedi & Stoep, 2016) and aims to improve the capacity of farmers to produce better and take better informational decisions (Tavva et al., 2017). The content of the training is based on not necessarily new technology or innovation but fairly unadopted practices or techniques in the field (Stewart et al., 2015). It prepares farmers to adapt to changing conditions by refining their abilities for general farm system improvement or the adoption of new techniques, equipments and technology (Mbah & Igbokwe, 2014).

Farmer's training is a short or long term, formal or non-formal program designed to impart knowledge and/or skill to a group of farmers for attainment of specific objectives (Gwivaha, 2015). It is an essential component of agricultural extension, aiming to educate and encourage farmers to apply scientific knowledge and technical expertise to their on-field activities (Subedi, 2008). It plays a major role in facilitating the transfer of technology (Reddy & Kumar, 2020). It is potentially one of the most impactful ways of disseminating relevant new technologies that enhance productivity and reduce poverty in lesser developed areas (Nakano et al., 2018). Farmer's training in Nepal is conducted by governmental bodies, NGOs, INGOs, farmer groups and cooperatives, agricultural suppliers and private agencies (Subedi & McNamara, 2012; Ghimire et al., 2021).

Training effect on knowledge transfer and awareness

Training in simple terms is an access to knowledge/ information to be put to spontaneous use (Kilpatrick & Rosenblatt, 1998). Damalas and Koutroubas (2017) stated a significant positive relationship between training and the farmer's knowledge of pesticide use, belief in pesticide hazard control and safety behavior during application. IPM trainings in Nepal have increased the awareness of health and environmental consequences of pesticide use, ultimately reducing its usage in the field; and also have increased the knowledge and use of the safety measures to be applied during application of pesticides (Atreya et al., 2012; Ranabhat et al., 2021). Shakya and Acharya (2023) state farm households which receive training in pesticide usage and vegetable cultivation have a significant enhancement of 20.6% in knowledge on safe pesticide usage. If provided with safer pesticides or other alternatives, farmers are very much willing to increase their pesticide expenditure by 94% over the current level (Atreya, 2005). Low awareness on technology and its potential benefits can cause even a potential adopter to miss out on its adoption (Ullah et al., 2022). A study on determinants of Good Agricultural Practices (GAPs) in Chitwan reported large no of farmers to have heard the term GAP from technicians during

trainings; and increase in farmer participation in training by one unit increased the probability of being aware of GAP by 20.1% (Joshi et al., 2019). Farmers with access to trainings serve as effective resource for knowledge transfer within the local farming communities (Shrestha, 2014).

Training effect on adoption of improved practices and technologies

A major purpose of farmer training is to educate and encourage the farmers for the application of technical knowledge and scientifically tested ideas to field practice (Subedi, 2008). Farmers' participation in training is expected to have a positive relationship with technology adoption based on diffusion of innovation theory (Bekele & Drake, 2003). Kafle (2011) reported farmer's participation in training to be a major determining factor for the adoption of organic practices in vegetable farms of Nepal. Farmers' access to training has a significant positive relationship with proportion of area allocated to improved crop varieties (Gairhe et al., 2017). Suvedi et al. (2017) stated that the likelihood of Nepali farmers adopting improved vegetable crop varieties increases by 24% with the increase in degree of participation of farm households in the training.

A study by Kumar et al. (2020) in the lower belt of Nepal reported that households which receive agricultural training are 32 %, 9%, 7%, and 5% more likely to adopt cultural practices, pest management, irrigation management, and climate-resilient technologies respectively, while training appeared to be insignificant for adoption of disease management technologies. A similar study by Pokhrel et al. (2021) in Kanchanpur stated that the farmer's training had no such significance on pest management and control but the odds of adopting the disease control method for respondents who have received training were 3.284 times than those who have not. On a study of off-season vegetable farmers in Kaski, Ghimire et al. (2022) found out that farmers either do not adopt or discontinue the use of poly house technology when they do not receive adequate training on off season vegetable production. Farmers with participation in training have a greater likelihood of implementation of soil test and soil amendment practices (Bhandari et al., 2022). Upendram et al. (2023) on the study of adoption of multiple climate change practices among smallholder rice farmers in Nepal state that having access to training increases the likelihood of adopting three, four, and five climate change adaptation practices (high intensity of adoption) by 7.7, 5.1, and 2.1% farmers respectively. The beneficial outcome of participating in climate change adaptation training suggests that farmers who take part in these programs are more inclined to climate change adjustment; this involves adopting better crop types, modifying their farming schedules, paying attention to weather predictions, and practicing intercropping (Trinh et al., 2018).

But there are few instances where training has been quite insignificant to the adoption of practices and technologies in Nepal. Uprety et al. (2016) based on a SRI training in Morang stated that only a small segment of the trainees adopted the technology, & adoption was done only in some part of their fields; farmers had been unable to convert the training into productive agricultural activities. Similarly, Rijal et al. (2018) on a study based in Chitwan found that out of 34 and 46 percent farmers who reported to have knowledge on IPM practices and beneficial insects after the training, only 14% and 16% had adopted the IPM practices and preservation measures for beneficial insects respectively. Another study by Dhungana (2022) in Kathmandu determined training to be of no importance for the adoption of commercial vegetable farming practices.

Training effect on farmer efficiency and farm productivity

Capacity building of farmers through training is much better than the provision of economic support in terms of uplifting production and income (Murshed-E-Jahan & Pemsil, 2011). Farming households and businesses that participate more in trainings and bring positive changes in practice as influenced by the training course tend to have increased annual household income (Sanglestsawai et al., 2015) and profitable businesses (Kilpatrick, 1997). Atreya (2007) estimated an income gain of US \$25.23 per household from a five-day long IPM training in Nepal. Knowledge and skill earned through training when implemented on the field can help develop farmer efficiency and farm productivity (Ivey et al., 2012). Training is found to be a necessary input in enabling the farmers to develop their SKAs and transfer them to their field; motivating and enabling them to do their work much easier and faster; and enhancing their managerial skills (Noor & Dola, 2011). Training of women farmers is seen to develop their confidence, self-worth and capacity to contribute in agriculture development programs; i.e. support women empowerment (Subedi, 2008). Skill-development training is found to be one of the

most influencing human capital for farmers in developing business/enterprise & commercial farming strategies i.e, adopting high return livelihood strategies and reducing poverty in the rural areas in Nepal (Khatiwada et al., 2017). It is because such skill based trainings are more likely to develop more capable entrepreneurs (Wallenborn, 2009).

Provision of farmer training is associated with significant income gain even if the technology is discontinued in the following years (Schreinemachers et al., 2016). Schreinemachers et al. (2016) also stated that net household income on vegetable farms in Bangladesh increased by 48% with provision of training on vegetable farming. Similar study by Shrestha et al. (2016) in vegetable farms of Nepal showed improvement in farmer's technical efficiency and vegetable productivity with increased participation in trainings. Joshi and Kalauni (2019) stated farmer's training to be a stimulating agent for commercial and off-season vegetable farming in context of Nepal. Study of the training effect by Nakano et al. (2018) showed an increase in yield of rice by 2.2 tons per hectare. Similar study by Devkota and Upadhyay (2013) in Nepal showed that farmers with participation in training programs reported 37% more rice productivity. Mahat et al. (2019) reported that the trainings on cultivation practices, pest management strategies, and improved technologies help farmers to develop skills and knowledge required to increase production. Training sessions on cash crops enhance technical skills of farmers and increased women farmer participation (Raut & Sitaula, 2012). Farmer's training conducted in the form of Farmer Field School (FFS) in Nepal has been quite beneficial in developing technical competencies of farmers which ultimately improve their productive efficiency (Joshi & Karki, 2010).

Issues with farmer's training effectiveness in Nepal

Various concerns are observed in context of farmer's training in Nepal that ultimately reduces its overall effectiveness.

- Farmer training programs are quite inadequate as according to demand (Pokhrel et al., 2021)
- Socio-political interference is observed for participation of farmers in trainings
- Training programs lack proper monitoring, evaluation, assessment and follow up
- Exclusion of landless labour farmers in government training programs
- Landless farmer's own unwillingness to participate in trainings over their compulsion to trade off their daily wages
- Socio-economically disadvantaged households lack prioritization even within their farmer groups (Uprety et al., 2016)
- General content of the training is more theoretical and scattered in its subject matter approach (Suvedi & Ghimire, 2016).

Further recommended training needs of farmers

Farmers in Nepal are keen to participate in trainings related to crop planning, improved agricultural practices, soil health improvement, crop harvesting and marketing, commercial planning (G.C. & Hall, 2020), improved production technology, nursery management, vegetable farming, pest management & control, application & quality checking of chemical fertilizers (Raut & Sitaula, 2012; Joshi & Piya, 2021), off-season farming, commercial farming (Suvedi, 2008; Malla et al., 2022) and organic farming (Chand et al., 2022).

Discussion

Certain inconsistencies has been observed between knowledge transfer and adoption/ implementation in different farmer trainings which could have arisen due to lack of understanding & skill to apply the knowledge/ information in the field, lack of conviction for incorporating change in the field and farmer's conscious choice to not implement the practices based on personal beliefs (Ivey et al., 2012). Lower adoption scenario in certain cases indicates ineffective communication between the extension agencies and farmers (Rijal et al, 2018). Issues with farmer's training need to be dealt at both policy and local level. Along with dissemination of agricultural knowledge and technology as recommended by farmers, self and group skills viz. self-

awareness, decision making, interpersonal skills, team work & negotiation, etc. are to be imparted to the farmers through training programs for wholesome human resource development.

Increase in farmer participation can enhance the likelihood of trainings becoming more effective in general. Participatory planning and implementation of training programs, provision of agri-inputs during the program, increased accessibility to loan and credit facilities for participant farmers (Suvedi, 2008) and involvement of farmers in groups (Uprety et al., 2016) are certain proven measures to be implemented to improve participation in farmer's training. Higher participation is observed if the training program is conducted within the local farmer community. For trainings to be more effective to farmers in general, extension workers need to play effective facilitation role, program planning should be participatory, cultural and semantic barriers between extension agents & farmers should be minimized (Suvedi, 2008), training duration should be minimum of 2-3 days and more, content should be practical and skill based (Suvedi & Ghimire, 2016) and ICT tools need to be incorporated in the farmer training program (Sharma & Maheshwari, 2015).

Conclusion

Training appeared as an effective measure for the transmission of knowledge to the farmers and to make them aware about existing better agricultural practices and technologies. Apart from some cases, providing training to farmers has shown to significantly increase adoption of improved practices & technologies in the field, and continuance of adoption is also seen to be influenced by follow up trainings. Training has been instrumental in increasing farmer's skill & technical efficiency, general farm productivity ultimately leading to farmer livelihood upliftment. Hence, farmer's training can be considered a preferable agricultural extension service delivery mechanism in context of Nepal.

Conflict of Interest

The authors declare that there are no conflicts of interest regarding publication of this paper.

Author Biography

The author was born on 17th October, 1999 at Pokhara – 22, Kaski as eldest daughter of Mr. Baburam Baral and Mrs. Dibyaswari Regmi Baral. She completed her SLC from Shishu Niketan Higher Secondary School, Pokhara in the year 2015. She joined at SOS Hermann Gmeiner School Gandaki, Pokhara and completed 10+2 in Science in 2017. Then, she joined Agriculture and Forestry University (AFU), Rampur, Nepal in 2017 A.D. for the under graduate program in Agriculture Science (B.Sc. Ag) and completed the undergraduate course in 2022. The author is currently pursuing the postgraduate program (Masters in Agricultural Extension) under the Department of Agricultural Extension and Rural Sociology in Agriculture and Forestry University.

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