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Study of Two Farmer-Led Extension Approaches in Uttarakhand Hills

S.R.K. Singh[1], S.K. Pandey[2], A.K. Dixit[3], R.S. Negi[4] and S.S. Gautam[5]

ABSTRACT

Agricultural extension is playing untiringly role in uplifting the quality of life of the farmers and farm women in hills. Different extension approaches are being used in different location and considered as appropriate in that location. This study was conducted on the beneficiary of the Farmer to farmer extension (FFE) and Farmer field school (FFS). Results shown that both the approaches had its own objective and implementation process and made impact on the hill farmers differently. FFE advice was concentrated on making farmers' group, seed replacement and low external input use, whereas, FFS advised on seed treatment, scientific nursery raising, vermin-composting and judicious use of pesticides, etc. Both the approaches advocated for green agriculture in hills. Analysis showed that there were no significant differences between the two approaches in regard to gender, level of education, and leadership position. Regarding extension methods deployed, FFE used more mass approaches, whereas, FFS used group approach. FFE were the monthly interaction meetings in which scientists and extension agents meet with the farmers. In FFS, the main source of technical packages was the field training provided at the onset of the crop season in the selected farmers plots. Both the approaches proved effective for the dissemination of the technical information but FFS proved more appropriate and effective in extending the skill training to the farmers due to its field training during the crop season. Thus, this study gives a roadmap for the change agents for making suitable extension strategy.

Extension has diverse definitions but can be summarized as a field where agricultural professionals play a role in identifying, adapting, and sharing technology that is appropriate to the needs of individual farmers within diverse agro-ecological and socio-economic contexts (Landon Lane & Powell, 1996). In fact, agricultural extension is the process of introducing farmers to knowledge, information, and technologies that can improve their production, income and welfare (Purcell and Anderson, 1997).

Agricultural extension methods and approaches in developing countries have been changing in recent years to reflect a new development paradigm that emphasizes sustainability, institutional change, and a participatory learning process leading to local capacity building and empowerment (Toness, 2001).

Agricultural extension systems in many parts of the world have used different approaches. Each approach may be conceived as appropriate in particular situation and each has its own advantages and disadvantages. These approaches differs in terms of their organizational structure, resources of money, personnel and equipment, methods and techniques, programme goals and kinds of leadership (Axinn, 1988).

More recently, alternative approaches have evolved for small-scale farming systems in developing countries. These approaches seek to combine indigenous farmer knowledge with scientific knowledge of cropping systems and pests to develop site appropriate IPM systems. Variously labeled as ecological or sustainable IPM (Mangan & Mangan, 1998; Schwab, 1995), ecological IPM programs are increasingly linked to participatory extension approaches (Norton et al., 1999).

Agricultural extension is essential to agricultural development and people have a wide range of views about the relative value of agricultural extension because it has been organized in different ways to pursue different objectives. (Mollel and Antipas, 1999). Indian agriculture

[1] Sr. Scientist (AE), ZPD Zone VII, [2]SMS (Extn.), KVK Ratlam, Madhya Pradesh, [3] Programme Co-ordinator, KVK Ujjain, [4]Programme Co-ordinator, KVK Satna (M.P.) and [5]SMS Horticulture, KVK Tikamgarh.

has witnessed several extension approaches over due course of time for growth of agriculture and the society. But due to changing scenario, there is need for selecting better extension approaches especially for hills so that hill farmers can be more benefited from different programmes for agriculture development. Keeping in view the above facts, this study was conducted in which two farmer-led extension approaches viz., Farmer to farmer extension and Farmer field schools were compared.

Theoretical Framework

Farmer-to-farmer Extension (FFE)

In this approach, farmers learn from fellow farmers about new agricultural technology or a practice. The dissemination of innovations develops spontaneously when one farmer has successfully tested a new practice or technology, attracting the interest of other farmers. If the innovator is willing to share his/her knowledge, a farmer network may develop. The largest spontaneous network of this sort is the *movimiento de campesino-a-campesino* in Central America. Though, this approach can also be used in planned development projects.

This approach is based on the conviction that farmers can disseminate innovations better than official extension agents because they have an in-depth knowledge of local crops, practices, culture and individuals, they communicate effectively with farmers, and are almost permanently available in the community. Innovations are provided by agricultural research institutions, tested and adapted by selected farmers (called promoters or trainers), and, if considered valuable, passed on by hands-on experiences to fellow farmers.

Farmer-to-farmer extension contains elements of the Transfer-of-Technology (TOT) model, but farmers themselves play the crucial role in technology development and dissemination. Language barriers, social and cultural distance, unfavourable natural environments, or a lack of infrastructure make farmer-to-farmer extension an alternative to official extension services. The two main pillars of this approach are farmers' innovation and farmers' solidarity. This approach puts emphasis on increasing farmers' self-confidence and autonomy. It sees farmer promoters as a source of innovation. As the hilly region of NW Himalayas restricts frequent personal visits by the extension agents to the farmers, therefore, this approach seems suitable for overall development of hill agriculture.

Farmer Field Schools (FFS)

Farmer Field Schools stimulates farmers' learning about sustainable agricultural practices on their fields. Farmers meet regularly during entire cropping season and they learn by observing what is happening on the field. FFS combine elements of different extension models: they offer technology (IPM practices) to farmers, facilitate experiential learning and integrate farmers' knowledge for participatory technology development.

The most common topic of FFS is Integrated Pest Management (IPM). It is now often termed Integrated Production and Pest Management (IPPM), which is intended to ensure a safe production level with a minimum of external inputs. FFS on IPM are triggered by serious pest problems, excessive use of pesticides. FFS services are educational in essence. They aim to increase the technical competence of farmers in concerning crops; and strengthen the social competence and confidence of farmers. One FFS offers field-based learning experiences to 25 farmers; it lasts for a full cropping season and meets at least 12 times. Each meeting (4 to 5 hours) comprises three activities: agro-ecosystem analysis, special topic, and group dynamic exercise.

Objectives of the Study

1. To compare the FFE and FFS in implementation and technical advice.
2. To ascertain the source of technical package and extension teaching methods as perceived by the beneficiary farmers.

The main purpose of this study was to compare the two approaches (i.e. FFE and FFS) as being perceived differently by the change agents and beneficiary farmers because of the differences in the two approaches in terms of suitability, effectiveness and easy to understand etc. The extension agents who work with both approaches face practical problems on how to serve the same farmers using different approaches.

METHODOLOGY

Sources of data for this study were farmers, and extension personnel from line departments as well as NGOs working for agricultural development in the hilly region which were concerned with implementation of these approaches. The study used two interview schedules: one for farmers and one for extension workers. A purposive sample of three districts representing mid-hills in Kumaon was selected. Almora districts were covered by both extension approaches. Nainital district has FFE and other extension approaches but not covered by FFS. Bageshwar district implements the FFS and other programs but not the FFE.

A two-stage random sampling procedure was used to get a total sample of 300 farmers. First, 20 villages were selected, then 15 farmers per blocks. In Almora and Nainital districts, 16 villages were selected, while from Bageshwar only four were selected. In each village, all farmers covered by the program were included in the sample frame. In each selected villages, concerned village development officer (VDO) was included in the study. The ten farmers and the VDO from each village were interviewed individually. The interviews in each district were conducted by the well trained research associates. A total of six interviews were involved in gathering the data. In addition to the personal interviews, qualitative data were collected through focus group interviews (FGIs) held in four villages in Almora district, two villages covered by FFE and two covered by the FFS. Quantitative data from the personal interviews were analyzed using the Statistical Package. The analysis included descriptive statistics and analytical statistics like chi-square, t test.

The selection of villages for the study was based on whether they were recipients of the two said approaches. However, while conducting interviews, it was revealed that some farmers had been targeted by both approaches. There were a total of 78 such cases. The remaining 222 interviewees consisted of 95 farmers who had participated only in FFE and 127 who had participated only in FFS. The study findings are based on comparing data collected from these two distinct groups of farmers.

RESULTS AND DISCUSSION

Implementation of the two approaches:

The village development officers in collaboration with the people's representatives selected the contact farmers in both the approaches. The selected farmers were expected to test new practices in their fields so that other farmers residing in the villages can imitate them. Though selection of the farmers was unbiased, even then educated, innovative and resource-adequate farmers were selected due to their personal attributes.

Technical advice given by the two approaches:

Data revealed that 92.0 percent of the farmers claimed that the FFE advice was concentrated on making farmers' group, seed replacement and low external input use. On the other hand 89.7 percent of the farmers indicated that FFS concentrated its advice on seed treatment, scientific nursery raising, vermin-composting and judicious use of pesticides, etc. In fact both the approaches realize the need for green agriculture in hills.

Source of technical packages

The sources of technical packages for FFE were the monthly interaction meetings in which scientists and extension agents meet with the farmers. They review the performance of the earlier activities conducted with the farmers and prepare technical packages to be given to the farmers with the consultation of the extension agents. In FFS, the main source of technical packages were the field training provided at the onset of the crop season in the selected farmers plots. Scientist, VDOs and the adopted farmers meet and review earlier activities. They then discussed suitable technical packages to be supplied in the following seasons. The technology applied in the FFS has generally been investigated in on-farm trials and found to be acceptable to the farmers and effective in addressing their most important production constraints. It is interesting to note that in both FFE and FFS farmers' involvement in generating technical packages was optimum.

Use of extension teaching methods

Extension teaching methods employed by the two approaches are; individual, group and mass. It was found that FFE used wide use of mass teaching methods than FFS (Table 1).

Table 1: Extension teaching methods employed by FFE and FFS

S. No.	Method	Percentage of respondents	
		FFE (n= 95)	FFS (n=127)
1.	Individual	17.0	28.9
2.	Group	22.7	56.1
3.	Mass	60.3	15.0

Farmers' Characteristics

It is evident from Table 2, out of five farmer characteristics considered in the study, one characteristic (farm size) was differently represented in the two approaches. The FFS participants cultivated larger areas of land both in 2005 (initial) and 2008 (final) seasons. Another characteristic age of farmers was also different in the two approaches. FFE participants were, on an average, 5.4 years older than FFS participants. There were no significant differences between the two approaches in regard to gender, level of education, and leadership position.

Table 2: Percentage and Means of Certain Farmer Characteristics in the FFE and FFS approaches

Characteristics	Category	FFE (n=95) %	FFS (n = 127)%	Chi -square
Gender	Men	73.68	72.44	χ^2 = 0.043
	Women	26.32	27.56	p = .836 NS
Education	Below Primary	22.3	18.9	χ^2 = 0.523
	Primary	53.4	58.4	p = 0.77 NS
	Secondary & above	24.3	22.7	
Leadership	Leaders	37.6	41.8	χ^2 = 0.211
position	Non-leaders	62.4	59.2	p = 0.64 NS
	Measure	**Mean**	**Mean**	**t-value**
Age	years	45.7	40.3	t = .919 NS
Farm size	2005 (ha)	1.23	1.41	t = 1.345 NS
	2008 (ha)	1.38	1.56	t = 1.653 NS

CONCLUSION

Though both the extension approaches have implemented with its well planned strategy, but still people's participation is limited during planning phase of the implementation of these approaches. Differential perceptions about the two approaches are testimony of peoples' participation in the progrmme. Both the approaches proved effective for the dissemination of the technical information but FFS proved more appropriate and effective in extending the skill training to the farmers due to its field training during the crop season. Therefore, FFS could be emphasized more than FFE in the long term.

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