

Comparative Study of Agricultural Extension Approaches in Uttarakhand

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ABSTRACT

Agriculture extension plays a crucial role in the developing countries due to having rural based economies. More than 70 per cent of the population in Uttarakhand comprises farmers, 5.5 per cent agricultural labours and 1.5 per cent is engaged in small-scale enterprises. Women form the backbone of hill agriculture. The traditional approaches for transferring and disseminating agricultural technologies are proving insufficient in today's global context. This study was conducted in four districts of Uttarakhand state. Results of this study indicated that majority (64 %) of the respondents (on overall basis) used T&V approach at full scale. 28 per cent of the respondents were known with details of this approach. Forty three per cent (on overall basis) knew only details of FSR&E; however, 30 per cent used this at full scale. Apropos FFE, 52 per cent of the respondents (on overall basis) knew details and 17 per cent of the respondents used this at full scale. Regarding FFS, 36 per cent of the respondents (on overall basis) have heard about this approach; 34.0 per cent of the respondents knew details of this. As far as MLE, 37.0 per cent of the respondents (on overall basis) knew details; 34.0 per cent of them only heard about it and only 7.0 per cent of the respondents used at full scale.

Key words: *Extension approaches; T&V approach; Farming system research and extension; Farmer field schools;*

Uttarakhand, a state in North Western Himalayan hills, presents a unique geographical area where altitude ranges from 360 to 7,800 meter above mean sea level and therefore, the climate varies from subtropical to temperate. There is 10.1 million people with population density of 189 persons/sq km (*Census, 2011*). The region is dominated by traditional agriculture system, which is diverse as well as complex too. About 70 per cent of the population comprises the category of farmers, 5.5 per cent agricultural labours and 1.5 per cent is engaged in small-scale enterprises. Women form the backbone of hill agriculture. Although the state as a whole is surplus in food grains, however the hill districts namely - Almora, Nainital, Bageshwar, Pithoragarh, Champawat, Pauri, Tehri, Rudraprayag, Uttarkashi and Chamoli) face food shortage due to low productivity which is almost half of the tarai districts, viz. Dehradun and Udham Singh Nagar.

Agriculture extension plays a crucial role in the field of development because most developing countries have rural based economies whose sustainability and

productivity are directly linked to natural resources and their management. The traditional roles of transferring and disseminating agricultural technologies are proving insufficient in today's global context. Technology generation and its application will have to focus more strongly than ever before on the themes of optimization of available resources, sustainability, coping with diversity by adapting technology more specifically to agro-ecological or social circumstances (*Ponnuswamy and Gupta, 2004*). The extension services are mainly with line departments and agriculture development officers (ADO) and village development officers are extension workers at farmers' ends. Besides, several NGOs are also catering needs of farming community within their developmental schemes. But the existing extension approaches practiced by the extension personnel are unable to guide the farmers and entrepreneurs in the right direction due to fast changing agriculture scenario. Therefore, awareness about the effective extension approaches and its use will help for increasing the productivity of the growing crops through

adoption of modern agro-techniques along with package of practices. Keeping this in view a study was undertaken to find out the level of awareness about prevailing extension approaches vis-à-vis extent of use in Uttarakhand hills.

METHODOLOGY

This study was conducted in four districts, viz., Almora, Nainital, Bageshwar and Pithoraghar of Uttarakhand hills during 2008-09 using *ex-post facto* research design. Sources of data for the study were extension scientists, KVK personnel, ADOs in state departments of agriculture and NGO personnel working in study area. The study used two interview schedules: one for extension/KVK scientists/ADOs; and the other for NGO personnel. A sample of 15 extension scientists, 15 KVK personnel, 20 ADOs and 50 NGO personnel was taken and interviewed personally using pre-tested interview schedule to collect data for this study. The schedule was prepared with the help of extension scientists working in IVRI, Bareilly, GBPUA&T, Pantnagar and IARI, New Delhi. The level of awareness was measured on 4-point continuum, viz., 'don't know', 'heard only', 'know details' and 'used at full scale'. The collected data was analyzed using descriptive statistics, viz., frequency, per cent, etc.

RESULTS AND DISCUSSION

Results indicated that most of the organizations working in Uttarakhand are aware and concerned with mainly five extension approaches which are - Training and Visit, Farming System Research and Extension, Farmer to Farmer Extension, Farmer Field Schools and Market-led Extension (MLE).

Level of awareness about extension approaches: Awareness is the initial stage in the adoption process. It's the stimulating factor for further use of any techniques.

Training and visit (T&V) approach: This extension approach was introduced to solve inherent problems in the agricultural extension organizations. The data presented in Table 1 showed that majority (64%) of the respondents used this approach at full scale; however, 28 per cent of the respondents were known with details of this approach (on overall basis) which is mainly due to the multiple type of the respondents used. Apropos extension scientists, majority (60.0%) know details, whereas, 40 per cent used it at full scale. Regarding KVK personnel, majority (66.67 %) used this approach

at full scale; and 33.34 per cent of them knew details. Ninety per cent of the ADOs used this approach at full scale for agricultural development, whereas, only 10 per cent of them knew details. Regarding NGO personnel, majority (60%) used this approach at full scale during their work; whereas only 24 per cent of them knew details.

Farming system research and extension (FSRE) approach: This extension approach was introduced to understand the complete farming system of a household, their problems and its solution with their available resources particularly by the researchers with participation of the households. It is clear from Table 1 that most of the respondents (43.0%, on overall basis) knew only details of this approach; however, 30 per cent of the respondents used this at full scale. Apropos extension scientists, majority (66.67%) used this approach at full scale, whereas, 33.33 per cent of them knew details. Regarding KVK personnel, majority 53.33 per cent of them knew details; and only 26.67 per cent of them used it at full scale. Regarding ADOs, majority (60.0%) knew details of this approach, whereas, an equal per cent of 15 per cent of them were able to use it at full scale and heard about it. For NGO personnel, this approach was little difficult which is clear by the fact that only 32 per cent of the respondents used this approach at full scale during their work; whereas only 36 per cent of them knew details.

Farmer to farmer extension (FFE) Approach: This extension approach is particularly suitable when there would any barriers like language, education level, etc. with the client groups, and also very limited resources for the extension activities. It was obvious from Table 1 that 52 per cent of the respondents (on overall basis) knew details and 22 per cent heard only about this approach; however, only 17 per cent of the respondents used this at full scale. Apropos extension scientists, majority (66.67%) of them knew details and 33.33 per cent used this approach at full scale. However among KVK personnel, majority 66.67 per cent of them knew details; and 33.33 per cent of them heard only about the approach. Regarding ADOs, 40 per cent of them knew details of this approach, 30 per cent heard only; whereas, only 10 per cent of them were able to use it at full scale. Forty eight per cent of NGO personnel knew details, 20 per cent of them used at full scale during their work; whereas 22 per cent of them heard only about this approach.

Farmer field schools (FFS) approach : This extension approach is mainly used to educate the farmers in the practicing sustainable agriculture through higher adoption of IPM, IPNM, ICM, etc. The data presented in Table 1 show that thirty six of the respondents (on overall basis) have heard about this approach; 34 per cent of the respondents knew details of this. Apropos extension scientists, majority (73.33%) used this approach at full scale, whereas, 20 per cent of them knew details. Regarding KVK personnel, majority 53.33 per cent of them have heard about it; and only 26.67 per cent of them knew details of it. Regarding ADOs, an equal per cent of respondents (35%) knew details as well as have heard about this approach, whereas, none of them were able to use it at full scale. For NGO personnel, 24 per cent of them knew details about this approach; whereas most of them had either heard only or unknown with it. Results have conformity with the findings of *Mollet & Antipas (1999)* and *Roling and Pretty (1997)*.

Market-led extension (MLE) approach: This extension approach is the need of the hour as the farmers are shifting from subsistence to profitable farming. *Reddy and Jaya (2002)* reported that this approach has advantage over conventional TOT model as it enable the farmers to get optimum/higher returns from their enterprises due to involvement in the marketing, available them basket of package' of practices suitable to their farming situation, proper data recording and sufficient IT support. It is evident from Table 1 that most of the respondents (on overall basis) knew only details; 34 per cent of them have only heard about it and only 7 per cent of the respondents used this at full scale. Apropos extension scientists, majority (60%) of the respondents knew details, whereas, 26.67 per cent of them have heard only. Regarding KVK personnel, majority 40 per cent of them have heard only; and only 26.66 per cent of them knew details. Regarding ADOs, 35 per cent of the respondents knew details of this approach, whereas, only 15 per cent of them were able

Table 1. Distribution of the respondents on the basis of their level of awareness of about the extension approaches. (N = 100)

| Extension approaches | Responses Not Known | Heard only | Know details | Used at full scale |
|--------------------------------------|---------------------|------------|--------------|--------------------|
| <i>Extension Scientists (n = 15)</i> | | | | |
| Training and Visit System | - | - | 9 (60.0) | 6 (40.0) |
| FSR&E | - | - | 5 (33.33) | 10 (66.67) |
| Farmer to farmer extension | - | - | 10 (66.67) | 5 (33.33) |
| Farmer field schools | - | 1 (6.67) | 11 (73.33) | 3 (20.0) |
| Market-led extension | - | 4 (26.67) | 9 (60.00) | 2 (13.33) |
| <i>KVK Personnel (n = 15)</i> | | | | |
| Training and Visit System | - | - | 5 (33.33) | 10 (66.67) |
| FSR&E | - | 3 (25.0) | 8 (53.33) | 4 (26.67) |
| Farmer to farmer extension | - | 5 (33.34) | 10 (66.67) | - |
| Farmer field schools | 3 (25.0) | 8 (53.33) | 4 (26.67) | - |
| Market-led extension | 5 (33.34) | 6 (40.0) | 4 (26.66) | - |
| <i>ADOs (n= 20)</i> | | | | |
| Training and Visit System | - | - | 2 (10.0) | 18 (90.0) |
| FSR&E | 2 (10.0) | 3 (15.0) | 12 (60.0) | 3 (15.0) |
| Farmer to farmer extension | 4 (20.0) | 6 (30.0) | 8 (40.0) | 2 (10.0) |
| Farmer field schools | 6 (30.0) | 7 (35.0) | 7 (35.0) | - |
| Market-led extension | 5 (25.0) | 8 (40.0) | 6 (30.0) | 1 (05.0) |
| <i>NGO personnel (n = 50)</i> | | | | |
| Training and Visit System | 2 (4.0) | 6 (12.0) | 12 (24.0) | 30 (60.0) |
| FSR&E | 6 (12.0) | 10 (20.0) | 18 (36.0) | 16 (32.0) |
| Farmer to farmer extension | 10 (20.0) | 16 (32.0) | 14 (28.0) | 10 (20.0) |
| Farmer field schools | 18 (36.0) | 20 (40.0) | 12 (24.0) | 0 (0.0) |
| Market-led extension | 12 (24.0) | 16 (32.0) | 18 (36.0) | 4 (8.0) |

Figure in parentheses indicates the per cent.

Table 2. Distribution of the respondents on the basis of criteria for selection of the extension approaches. (N = 100)

| Criterion | Extension Scientists | KVK Personnel | ADOs | NGO | Overall |
|--------------------------------|----------------------|---------------|------------|------------|-----------|
| Area specific problem oriented | 4 (26.67) | 5 (33.33) | 6 (30.00) | 9 (18.00) | 24 (24.0) |
| Target group oriented | 3 (20.00) | 7 (46.67) | 10 (50.00) | 34 (68.00) | 54 (54.0) |
| Farming situation oriented | 8 (53.33) | 3 (20.00) | 4 (20.00) | 7 (14.00) | 22 (22.0) |
| Total | 15 (100.0) | 15 (100.0) | 20 (100.0) | 50 (100.0) | 100.0 |

Figure in parentheses indicates the per cent.

Table 3. Ranking of different extension approaches on the basis of the extent of their use by the different organizations. (N = 100)

| Extension approaches | Research Institutes | KVK | State Dept. | NGO |
|-------------------------------------|---------------------|-----|-------------|-----|
| Training and Visit System | III | I | I | IV |
| Farming system research & extension | I | III | IV | II |
| Farmer to farmer extension | IV | II | II | I |
| Farmer field schools | II | V | IV | V |
| Market-led extension | V | IV | III | III |

to use it at full scale. For NGO personnel, this approach was little difficult which is clear by the fact that only 32 per cent used this approach at full scale during their work; whereas only 24 per cent of them know details.

Criteria for selection of different extension approaches : The selection of the suitable extension approaches also depends upon the criteria on the basis of which various extension organizations select the same. Therefore, it was much pertinent to the study these for better understanding about the implementation and use of different extension approaches. As depicted in Table 2 that majority (54.0 %) of the respondents (on overall basis) viewed that target group oriented, followed by area-specific problem oriented and farming situation oriented extension approaches were selected and implemented by their organization. Though, majority of the scientists (53.33 %) viewed as farming situation oriented, however, KVK personnel (46.67%), ADOs (50.0%), and NGOs (68.0%) opined that target group oriented approaches followed by area-specific problem oriented approaches were selected and implemented by their respective organizations. The above results indicate that except research organizations, other extension agencies were opted target group oriented approaches followed by other criteria.

Organizational differentiation in the use of extension approaches: The analyzed data indicated that all selected extension agencies using the extension approaches as per their mandate of the organization, budget allocation, staff availability and infrastructural

facility available with them. Besides, it was observed that the use of a particular extension approach also depends upon the organizational climate and top level management.

Research institutes: The data depicted in table 3 indicates that the ICAR institutes working in Uttarakhand were using extension approaches in the order of Farming system research & extension (1st), Farmer field schools (2nd), Training and visit system (3rd), followed by Farmer to farmer extension and Market-led extension, respectively, to cater the needs of the hill farmers. This was because of the mandate of the institute which is research and not extension. Due to which limited extension scientists and associates are available with these institutes just to verify the developed technologies at farmers' condition before its popularization at larger scale.

KVKs: KVKs have well defined mandate for extending the technologies to the farmers' fields as supplied by different technology generating agencies. Therefore, the extent of use of extension approaches happened to be Training and visit system (1st), Farmer to farmer extension (2nd), Farming system research & extension (3rd), followed by Farmer field schools, and Market-led extension, respectively,.

State Dept. of Agriculture: The extension work has to be carried out by these agencies. Therefore, after inception of T&V, the whole extension work was switched to it. The order of extension approaches used by them are Training and visit system (1st), Farmer to

farmer extension (2nd), Market-led extension (3rd), followed by Farming system research & extension, and Farmer field schools, respectively. This is mainly due to the fact that the state department has not sufficient expertise as well as mandate for research; therefore, they are using the above-mentioned approaches at large. *NGOs*: NGOs are catering the farmers' need through increasing social capitals rather than technical aspects. This is mainly due to the limited budget allocation, less staffs as well as lack of sufficient infrastructural facility with them. Therefore, they prefer Farmer to farmer extension (1st), Farming system research & extension (2nd), Market-led extension (3rd), followed by Training and visit system and Farmer field schools approaches, respectively for easy implementation and more visibility of the work to the clientele.

CONCLUSION

Discussion on various extension approaches indicated that despite media interventions, still considerable proportion of the extension personnel particularly state department and NGOs are not fully aware with the suitable extension approaches. This may be due to their ignorance or faulty perception. Therefore, there is dire need for updating and training of such personnel for increasing effectiveness of the extension services catered by them. Moreover, it is urgently needed in the hill agriculture where situation is grim and lots of efforts are required to make hill agriculture economically more viable and environmentally sustainable.

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