Research Article

Identifying Required Competencies for New Extensionist to Fulfill the Needs of Farmers

Muhammad Rameez Akram Khan[1], Badar Naseem Siddiqui[1]*, Mahmood Iqbal[1], Rana Muhammad Aadil[1], Muhammad Imran Yousaf[1] and Rafey Muzamil[2]

[1]Department Agricultural Extension & Communication, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi;
[2]Department of Agriculture Extension, University of Agriculture, Faisalabad
*Corresponding author: drbadar@uaar.edu.pk

ABSTRACT

The agriculture sector requires capable personals (extension field staff: EFS) those are skilled in all aspects of work in agricultural and rural centers. Agriculture extension primarily deals with the transfer of knowledge and technology to farmers from agricultural research centers. Keeping in view the importance of EFS in agriculture sector, the present study was designed to re shape the role and responsibilities of extension field staff so farmer can take maximum benefits from them. Out of three tehsils of Mianwali district, tehsil Mianwali was selected. The total sample comprised of 140 respondents (120 farmers selected from six union councils of tehsil Mianwali and 20 extension field staff are selected 10 each from Mianwali and Rawalpindi). Majority (71 percent) of the respondents categorized: problem solving, inputs and outputs services, carries up to date information about the crops and identify the farming issues accurately, as highly perceived professional competencies. On the other hand, EFS respondents have same view about the professional competencies required for new extensionist. Also a clear majority (75.8 - 90 percent) of the respondents rated farming competencies; land preparation, knowledge on appropriate time of harvesting, fertilizer application, knowledge on irrigation, knowledge on time sowing, and weeds and insect management rated as very high. A fair majority (75.8-88.3 percent) of farmer as well as EFs respondent's perceived scientific competency related to 'knowledge about uncertain climate change' and 'crop disease identification and control'. If EFS got these skills which were lacking in the mentioned study, framers trust will enhanced, EFS get self-motivation, and better linkage and communication dimensions are settled which are required competencies to prepare the individuals to meet new challenges in agricultural development.

Key words: New extensionists, Competencies, Needs of farmers

INTRODUCTION

Agriculture extension largely handles human resource development (HRD) plus the transfer involving technology along with know-how to help farmers from agricultural study centres. Improving HRD in outlying group can be the fundamental element regarding agriculture along with group development. The farmer's education is an essential responsibility of every extension agent's responsibilities in worldwide. For the purpose extension employees are competent in, at least, five different major area namely: technical competency (skills and knowledge/practices specially related to job), economic competency (financial management skills according to farmers resources), science competency (awareness about the technical aspects of agriculture and can also identify the problems and having scientific solutions for farmers, farming (professional) competency (skills and knowledge specially related to agriculture) and communication competency (having motivational, negotiating, convincing, presentation and conflict resolving skills). Extension workers are professionals in the extension system who is responsible for developing the individuals in the community worldwide (Wasihun, 2013).

The term "new extensionists" gaining popularity now a days and this is a vision of new roles, capacities and strategies to reduce the poverty and hunger through strengthening the rural advisory services – the activities that provide the information and capacities needed by farmers and other stakeholders in rural community to respond the existing and new challenges and to improve their livelihoods (GFRAS, 2012).

The roles mainly include in developing networks, organising producers, facilitating access to credit, input and output services, convening innovation platforms, promoting gender equality, facilitating knowledge management, supporting adaptation to climate change, and demonstrations. One of the major problems faced by the extensionists is that they are usually qualified theoretically rather making them equipped with practical knowledge of the field. In addition, there exists an absence of much needed linkages and communication dimensions which are used to determine required competency in order to prepare individuals to meet new challenges in agricultural development.

Keeping in view the importance of new extensionists, present study was conducted. The main aim of this study was to explore the technical competencies and professional competencies that agricultural extension agents should possess prior to educate the farmers. Moreover, it evaluates the comparison between the required competencies perceived by the farmers and by EFS.

MATERIALS AND METHODS

Universe of the study

The current study was carried out in district Mianwali which is located in the west of Punjab province, about 200 km in the south-west of Islamabad. It is divided into three tehsils naming Mianwali, Isa-Khel and Piplan. The district consists of 56 union councils (UCs). Out of 56 UCs, 28 are in Mianwali tehsil, 14 each are in tehsil Isa-Khel and tehsil Piplan. Mianwali tehsil was selected purposively out of three tehsils of Mianwali district. From the selected tehsil, six union councils were randomly selected with the lottery method.

Sample and sampling procedure

A multi-stage-cum random sampling technique was employed to get the representative sample for this study. A sample of 120 farmers was selected whom were regularly visited to the extension filed staff (EFS) of district Mianwali. At first stage, six (6) UC were selected with lottery method from 28 UC of the tehsil. At second stage, two villages were randomly selected from each selected UC. Finally, ten (10) farmer respondents were selected from each selected village by utilizing simple random sample method. In addition, 20 (EFS) professionals were randomly selected as respondents from Department of Agriculture Extension, Mianwali and district Rawalpindi. Hence, total sample was comprised of 140 respondents (120 farmers and 20 EFS).

In order to obtain required data, two interview schedules were designed. One is designed for taking responses of EFS and the other is designed for farmers' responses. The respondents were personally interviewed face-to-face by researcher at their farms or homes. A five point Likert scale was used to obtain the data (Carifio and Perla 2007). For the purpose of obtaining required information respondents were asked questions in Urdu, Punjabi and Saraiki language for the ease of interviewees although it is designed in English.

The collected data was first entered in Microsoft Excel 2007 spread sheet and then was analysed through Statistical Package for Social Sciences (SPSS), descriptive statics was used to interpret the data.

RESULTS AND DISCUSSION

Source of Information

The respondents are asked about major source(s) of information for their agriculture needs. Data tabulated in this regard illustrate that clear majority, 41 percent of the respondents get information from EFS. Whereas, 21 percent of respondents rely on the local people opinion regarding farming. While 12 percent of respondents categorized about radio, 12 percent about T.V and very few (2.9%) reported about newspaper and (0.7 %) internet as a source of information of farmers. A study conducted in NWFP Pakistan Khan (1990) reported the same that, agricultural extension services provided by the government are an important source of information to the farmers. These services are designed to support farmers by supplying latest information in all agricultural areas in order to improve their performance. (Table 1.1).

Table 1: Source of information of the farmers

Source of information	Frequency	Percent %
Extension field staff	120	41.8
Newspaper	17	5.9
Local people	61	21.4
Radio	47	16.3
T.V	35	12.2
Internet	07	2.4
Total	139	100.0

Respondents were more than 100% due to multiple responses by the respondents.

Expectations of farmers about new extensions professional and technical competencies

a) Professional competencies of EFS perceived by the farmers' respondents

The respondents are asked questions about the access to required professional competency level of new extensionist of their corresponding area. Data collected in this regards shows that the vast majority (71.7-89.2%) of the respondents categorized; problem solving, inputs and outputs services, carries up to date information about the crops and identify their farming issues accurately, as highly perceived competency of the new extensionist. More than half (55.0-74.2%) of the respondents ranked; facilitating access to credits, use of appropriate audio-visual aids, conduct training on agriculture, communicate about the latest agriculture techniques and provide helping material related to agriculture and rest of the competencies are found least interested by the farmers.

To calculate the relative ranking of the possessed competencies their relative scores were computed by multiplying the value of score given to each group of the scale with the frequency counts and was displayed in **Table 2** which highlights; inputs and output services fell in between high and very high categories but leaned towards very high category and placed at top (1st) with highest score (585) with mean value of 4.87 and SD 0.356. Problem solving and carries up-to-date information about the crops ranked 2nd and identifying the farming issues ranked 3rd. comparable results were reported by Wasihun *et al*. (2013) about the perceived professional competencies needed by extension agent themselves.

Table 2: Relative ranking of perceived professional competencies of new extensionist

Professional Competencies	Weighted score	Mean	SD	Rank order
Input and output services	585	4.87	.35	1st
Carries up to date information about crops	583	4.85	.35	2nd
Problem solving	583	4.85	.43	2nd
Identify the farming issues accurately	560	4.66	.57	3rd
Facilitating access to credits	536	4.45	.76	4th
Communicate about the latest agriculture techniques	472	3.86	.89	5th
Provide helping material related to agriculture	460	3.83	.67	6th
Conduct training on agriculture	454	3.76	.84	7th
Use of appropriate audio-visual aids	445	3.65	1.07	8th
Facilitating participatory learning	392	3.24	.84	9th
Monitoring activities with farmers	377	3.14	.73	10th
Organizing and farming groups	376	3.13	.79	11th
Group communication	360	3.00	.91	12th
Agriculture business development	360	3.00	.91	12th

Table 3: Relative ranking of new extensionist perceived technical competencies

Technical competencies	Weighted score	Mean	SD	Rank order
A) Farming				
Weeds and insect management	587	4.89	.33	1st
Knowledge on time of sowing	585	4.87	.33	2nd
Fertilizer Application	583	4.85	.37	3rd
Knowledge on appropriate time of harvesting	583	4.85	.35	3rd
Knowledge on irrigation	579	4.75	.85	4th
Land preparation	563	4.69	.59	5th
Arrange demonstrations of progressive farmers farm	554	4.61	.53	6th
Post harvest handling of crops	536	4.45	.76	7th
Livestock feed management	148	1.08	.80	8th
B) Economic				
Providing market information on crops and livestock	451	3.79	1.12	1st
C) Science				
Crop disease identification and control	585	4.87	.35	1st
Knowledge about uncertain climate change	563	4.69	.59	2nd
Carries information about the crops in your area	554	4.61	.53	3rd

Table 4: Relative ranking of perceived professional competencies of new extensionist

Professional Competencies	Weighted score	Mean	SD	Ranked order
Carries up to date information about crops	99	4.95	.22	1st
Problem solving	95	4.75	.44	2nd
Identify the farming issues accurately	99	4.95	.22	1st
Communicate about the latest agriculture techniques	84	4.20	.61	3rd
Provide helping material related to agriculture	81	4.05	.60	4th
Conduct training on agriculture	80	4.00	.64	5th
Use of appropriate audio-visual aids	96	3.45	.75	6th
Facilitating participatory learning	68	3.40	.50	7th
Monitoring activities with farmers	62	3.10	.30	9th
Organizing and farming groups	68	3.40	.50	7th
Group communication	66	3.30	.47	8th
Facilitating access to credits	80	4.00	.64	5th
Agriculture business development	81	4.05	.60	4th
Input and output services	95	4.75	.44	2nd

Table 5: Relative ranking of perceived technical competencies of new extensionist

Technical Competencies	Weighted score	Mean	SD	Ranked order
A) Farming				
Fertilizer Application	100	5.00	.000	1st
Knowledge on time of sowing	100	5.00	.000	1st
Knowledge on appropriate time of harvesting	100	5.00	.000	1st
Weeds and insect management	99	4.95	.223	2nd
Land preparation	96	4.80	.410	3rd
Knowledge on irrigation	96	4.80	.523	3rd
Arrange demonstration of progressive farmers farm	96	4.80	.410	3rd
Post harvest handling of crops	86	4.30	.732	4th
Livestock feed management	72	2.60	.598	5th
B) Economic				
Providing market information on crops and livestock	84	4.20	.410	1st
C) Science				
Crop disease identification and control	99	4.95	.223	1st
Carries information about the crops in your area	97	4.85	.366	2nd
Knowledge about uncertain climate change	78	3.90	.718	3rd

b) Required technical competencies of new extension field staff

In order to access the required technical competencies respondents were asked and information generated for farming competency reflected that majority (75.8-90.0 percent) of the respondents categorized; land preparation, knowledge of harvesting on appropriate time, fertilizer application, knowledge of irrigation, knowledge about sowing time, and weeds and insect management were selected as very high. Whereas, least importance (74.2 percent) is given by the respondents to, livestock feed management categorized as very low. Further to access the economic competency, a fair majority (75.8 percent) reported about market information given to crops and livestock rated as high. Majority (75.8-88.3 percent) of the respondents perceived very high scientific competency related to knowledge about uncertain climate change and crop disease identification and control to farming community by EFS.

The relative ranking of perceived technical competencies needed for new extensionist is presented in Table 3, which shows that weeds and insect management ranked at top in farming competency with the weighted score of (587) with mean value of 4.89 and SD 0.337. Knowledge of sowing time and crop disease identification and disease control ranked 2nd and knowledge on appropriate time of harvesting and fertilizer application ranked 3rd in table ?. Wasihun et al. (2013) concluded that these kinds of technical competencies should be there in future extension agents. While, knowledge on irrigation, land preparation, knowledge about uncertain climate change, crop disease identification and control, (new sentence??) Arrange demonstrations of progressive farmer's farm, post-harvest handling of crops found in between fairly and neutral needed competencies with more inclination toward fairly needed measures. Rest of the suggested farming competencies fell in less demanded categories and stood 7th and 8th respectively. Market information provided about crops and livestock ranked 1st in economic competency with weighted score of (451) and mean of 3.51 which fell in between medium and high category and SD 1.12. Crop disease identification and control leaned toward very high and stood 1st with the weighted score (585) with mean value of 4.87 and 0.356 SD in science competency. However, knowledge about uncertain climate change and carries information about crops in the area ranked 2nd and 3rd respectively.

Required professional competencies considered important according to extension field staff
a) Professional competencies

After assessing the famers perception about the new extensionist, EFS were interviewed to get there perception about the upcoming EFS. Information generated in this regard shows that a fair majority (75-90 percent) rated professional competencies like: input and output services, solving problems regarding farming, identifying the farming issues and up-to-date information about the crops as very high by the extension field staff. Whereas, fair majority (60-90 percent) of respondents reported professional competencies related to facilitating participatory learning, organizing farming groups, group communication and monitoring activities with farmers as a medium.

Relative ranking of the professional competencies of new extensionist shows that identifying the farming issues accurately and latest information about the crops found to be the highly preferred professional competencies with the highest weight score (99), mean value of 4.95 and ranked at top almost same findings were also reported by Khan et al. (2009). And followed by input and output services and solving problems of farmers ranked 2nd with weighted score (95) and mean value of 4.75. At the same time, group communication and monitoring activities of farmers were raked at last on 8th and 9th rank respectively (Table 4).

b) Technical competencies

Respondents were asked regarding the technical competencies required for new extensionist to fulfill the needs of farmers. Data analyzed in this regard about farming competency illustrates that majority (85-100 percent) of the respondents categorized about knowledge of irrigation in the area, knowledge about harvesting time and sowing time and fertilizer application were selected as very high in scale. Though (65 percent) of the respondents categorized livestock feed management as a medium in farming competency. In economic competency, market information provided for crops and livestock categorized as high (80 percent) by a number of respondents. While in science competency, fair majority (85-90 percent) of the respondents reported about crop disease identification and disease control and up-to-date information about the crops as very high.

Relative ranking of competencies required by EFS is presented (Table 5) which indicates that fertilizer application, knowledge on sowing and harvesting time be the highly obtained farming competencies with the highest weighted score (100) and mean value (5.00). The aspects like: 'weeds and insect management', 'arrange demonstration on progressive farmer's farm' and 'land preparation' found in between high and very high category but leaned towards very high category. Though, livestock feed management stood last with 2.60 mean. In economic competency, the category 'provide market information about crops and livestock' ranked ant top with weighted score (84) and mean (4.20) that fell in between high and very high categories but leaned toward high category. In science competency, crop disease identification and disease control ranked at top with weighted score (99) and mean value of 4.95. Knowledge about uncertain climate changes stood at 3rd with weighed core (78) and mean value of 3.90 which fell in between medium to high categories but leaned more toward high category.

Conclusions

Farmers and EFS identified and prioritized some important professional and technical competencies to be part of new concepts for extensionists. Those professional competencies included: input and output services, carries up to date information about the crops, identification of farming issues, facilitating access to credit and communication regarding latest agricultural techniques. Moreover, technical competencies like weeds and insect management, knowledge of timely sowing and fertilizer applications are claimed to be most needed technical

farming competency by the farmers. On the other hand, EFS respondents reported about fertilizer application, knowledge of timely sowing and harvesting, weeds & insect management and arrangement of demonstration on progressive farmer farm are perceived as important for new extensionist to fulfill the needs of farmers. Among economic and science competencies, farmers and EFS had same view that extension graduate must have strong knowledge regarding disease identification and control, climate changes and management. If our new extension staff are equipped with the above mentioned competencies drawn from the study, our farmers can have sufficient benefits from extension department and also they can enhance their productivity. Beside this new extensionists in the field of agriculture extension they have to improve their competencies to meet the challenges in agriculture sector and to fulfill the needs of farmers.

Recommendations

The extension worker must be equipped with good analytical skills through future forecasts to address the uncertain climatic changes, insect/pest and disease attack etc. they must hold knowledge about latest ICT, like GPS, emailing and related software applications.

REFERENCES

Anaeto, FC, CC Asiabaka, FN Nnadi, JO Ajaero, OO Aja, FO Ugwoke, MU Ukpongson and AE Onweagba 2012. The role of extension officers and extension services in the development of agriculture in Nigeria. J Agric Res, 1: 180-185.

Bhargava, A and M Pathy 2011. Perception of students' teachers about teaching competencies India. Orissa, India: American Int J Contemp Res, 1: 77.

Boyd BL, 2003. Identifying competencies for volunteer administrators for the coming decade: A national Delphi study. J Agric Edu, 44: 47-56.

Carifio and Perla, 2007, Ten Common Misunderstandings, Misconceptions, Persistent Myths and Urban Legends about Likert Scales and Likert Response Formats and their Antidotes. J Soc Sci, 3: 106-116.

GFRAS, 2012. Annual Report: The "New Extensionist": Roles, Strategies, and Capacities to Strengthen Extension and Advisory Services. Global Forum for Rural Advisory Services (GFRAS) Eschikon, Lindau, Switzerland.

Khan MZ, S Pongquan and J Ullah, 2009. An analysis of professional competencies of Agriculture Officers to cope with problem of weeds in North West Frontier Province-Pakistan. J Agric Ext Rur Deve, 1: 58-62.

Khan, A, G Morgan and AJ Sofranko, 1990. Farmers' utilization of information sources: A study of the farmers in NWFP. J Rural Develop Administ, 22: 38-58.

Tope, O, 2012. Effects of teachers competencies on students' academic performance. Ego Boosters Books, Ogun State, Nigeria.

Wasihun, BN, JA Kwarteng and EL Okorley 2013. Professional and technical competencies of extension agents as perceived by male and female farmers and the extension agents themselves. J Agric Bio Res, 2: 11-16.