

Information Sources as Tool for Solving Farmers Problems in Khyber Pakhtunkhwa (Pakistan)

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Abstract

Information transmission among the researchers, extension worker and farmers is of great importance for agricultural development. Proper dissemination and adoption of modern technologies can increase agricultural productivity and solve farming problems. Poor contact with information sources results in poor transfer of information among farming community. The study examines the role of different information sources in solving farmers' problems. A well-structured and pre-tested interview schedule was administered to a total of 240 sample farmers from 4 randomly selected districts of KPK namely, Bannu, Mansehra, Mardan and Swat during June-July 2011. Data was analyzed through SPSS using percentages, graph and Chi-square test. The results showed significant association between extension contact and farmers awareness about modern technologies. The major source of information was the pesticide dealers followed by fellow farmers. The role of extension worker as information source remained far behind their expected role as reported by only 33% of the sample farmers. Farmers were confronted with numerous problems and seek the solution of problems through different sources. Again, pesticide dealers/staff of Pesticide Company (80%) provided the solution of problems, followed by fellow farmers (27%) and extension worker (22%). This showed the poor and negligible role of extension agent in solving farmers' problems. There is a need for strong linkages for effective and efficient flow of information through extension services to the end-users.

Keywords: Modern agricultural technology, information sources, agricultural problems and solution of farmers.

Introduction

Agricultural extension is essential for agricultural development. The ultimate goal of agricultural extension is to improve the socio-economic conditions of farming communities through the transfer of improved farming practices to the rural people. Agricultural extension services use various strategies to contact and encourage farmers to adopt agricultural innovations. The extension workers are charged with the responsibilities of educating and disseminating useful and timely agricultural information to the farmers. The extension services also act as a feedback mechanism to researchers on problems faced by farmers (Bhuiyan, 1978).

Agricultural development can be closely and directly linked to the overall development of agro-based countries, where agriculture holds a pivotal position, being the main profession of rural people. In fact, "no country anywhere has ever reached an advanced stage of economic development in the absence of agriculture as its primary engine of growth" (Pickering, 1989). But still agricultural production in these countries remained low and it is believed that lack of

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technical knowledge at the farm level is the principal factor for poor agricultural productivity. According to FAO (1985) in many developing countries, wide adoption of research findings by majority of farmers remains quite limited. There are many weaknesses identified in the existing extension systems (Malik and Prawl, 1993). One of most important is non-availability of timely information about new technologies and its improper utilization, besides, unqualified staff, outdated syllabi, lack of in-service training and no use of audio-visual aids.

This situation calls for a system which allows adequate and efficient information flow to the farmers for solution of their problems and farmers exposure to a variety of information sources. Greater exposure of farmers to a particular information source shows the interest, reliability and credibility given by farmer to that information source for solving their farming problems (Oakley and Garforth, 1985) but it also reflects farmers' motivation to obtain more and more information.

Information transmission among the research scientists, extension workers and the farmers serve the lifeline of agricultural development. The application and dissemination of modern technologies and techniques in farming can increase agricultural productivity and solve farming problems. Knowledge about different sources will help to identify the important role played by these information sources in disseminating agricultural information among the farming community and solving their problems. The research study was conducted to study the role of information sources as a tool for solving farmers' problems in Khyber Pakhtunkhwa with the following objectives:

1. To study the existing pattern of farmers information sources in the study area.
2. To identify the agricultural problems faced by farmers in the study area.
3. To ascertain the role of different information sources in problem solving.

Materials and Methods

The universe of this study, consists of 25 districts of Khyber Pakhtunkhwa, out of which 4 districts were randomly selected namely Bannu, Mansehra, Mardan and Swat. Two villages were randomly selected from each district and 30 farmers were then randomly selected from each selected village, thus, giving a total of 240 farmers. A well structured and pretested interview schedule was used as a data collection instrument during June-July 2011. Collected data was analyzed using SPSS and results were presented using percentages, graphs and Chi-square test. To test the association between contact with extension agent and the knowledge about modern agricultural technology, and to find association between problems faced and size of farm, a Chi-square test was used at 5% level of probability.

Results and Discussion

Acquaintance with Extension agent

Extension services are very important for agricultural development. Extension services are supposed to work as a bridge among farmers, researchers, extension workers and teaching institutions. The data regarding acquaintance with extension agent was depicted in Table 1. Sarcastically enough, only 90 (37%) farmers knew about extension agent. Swat being a mountainous area, only two farmers reported that they knew extension agent showing poor contact. On the other hand, a vast majority of the farmers i.e. 150 (63%) reported that they did not know extension agent. Almost opposite results were obtained by Pervaiz (2009) who reported that 54% of farmers had contact with extension worker as against 46%.

Table 1: Respondents Acquaintance with Extension Agent

Location	Knew Extension Agent		Total
	Yes (%)	No (%)	
Bannu	19 (32)	41 (68)	60
Mansehra	54 (90)	6 (10)	60

Mardan	15 (25)	45 (75)	60
Swat	2 (3)	58 (97)	60
Total	90 (37)	150 (63)	240

Knowledge about Modern Agricultural Technologies

Modern technologies are available at research stations but are not effectively communicated to the end-users. Emphasis should be laid on the most modern agricultural techniques which is only possible through efficient and effective dissemination of agricultural information among the farmers (Butt, 2002). The word technology has been defined variously by different authors. However, generally acceptable definition is that “technology is the pool of all known techniques which are cost-effective and time minimizing”. The use of modern machinery in the field of agriculture not only minimizes the time but also increases productivity and profitability. Consequently, upon which poverty could be reduced and socio-economic conditions of farmers were improved. Table 2 showed that 172 (72%) farmers had some knowledge of agricultural technology and majority of these belonged to district Mansehra and Mardan. On the other hand, 68 (28%) farmers did not know about new agricultural technology.

Table 2: Respondents Knowledge about Modern Agricultural Technology

Location	Knowledge about Modern Agricultural Technology		Total
	Yes (%)	No (%)	
Bannu	34 (57)	26 (43)	60
Mansehra	55 (92)	5 (8)	60
Mardan	57 (95)	3 (5)	60
Swat	26 (43)	34 (57)	60
Total	172 (72)	68 (28)	240

Association between Extension Contact and Farmers' Awareness

In Table 3, analysis indicates the association between contact with extension agent and awareness of sample farmers about modern agricultural technologies. A Chi-square test was applied to find the association between the two attributes. It is evident that there existed a highly significant association (as $P < 0.05$) between contact with extension agent and awareness about modern agricultural technologies. P- Value is 0.000, which showed that contact with extension agent had strong relationship with the knowledge of modern agricultural technologies and it means that those farmers who had contact with the extension agent knew about the modern techniques as compared to those who did not have any contact with extension worker.

Table 3: Association between Extension Contact and Farmers' Awareness

Extension Contact	Awareness about Modern Technologies		Total
	Yes	No	
Yes	88	2	90
No	84	66	150
Total	172	68	240

Chi-Square value=48.350 with P-value=0.000

Information Sources

Knowledge and information are very important for the adoption and diffusion of any innovation. In other words, authentic sources of information and rapid diffusion of new agricultural technologies are positively correlated (Stefano *et al.*, 2005). Information is usually

given to the farmers either through electronic media, print media or personally. Every source has its own merits and demerits. It was observed during the field survey that overwhelming majority of farming community did not know most of the new agricultural machinery not to speak of its use. History shows that agricultural development in developed countries was the result of effective and efficient communication with farming community regarding the use of new agricultural technology. On the other hand, in Pakistan, majority of small farmers were not aware of most of new agricultural technologies (Pervaiz, 2001).

Table 4 indicates the sources of information regarding modern agricultural technology. In the study area, only 53 (22%) farmers reported that they got information from extension staff as against 187 (78%) farmers. Strangely, only 7 (3%) farmers got information from research staff and these farmers were mainly in district Mansehra. Mass media methods are useful in creating awareness of new ideas and practices. Electronic media as a source of information and knowledge was reported by 81(34%) farmers, majority belonging to district Mansehra, followed by 26 farmers in district Mardan. Poor number of farmers in district Bannu and Swat could be attributed to the fact that language was the main barrier to understand the message as generally agricultural programs were aired in Urdu and Punjabi and very seldom in other languages. Lastly, overwhelming majority of 152 (63%) farmers reported that they got knowledge and information from fellow farmers regarding modern agricultural technologies. It is concluded that there was insignificant linkages of extension, research and farmers that is why only 25% of farmers quoted the source of knowledge as extension and research staff. This showed that there was defective and inefficient extension system and until and unless this system is strengthened agriculture could not be developed in Pakistan. Similar results were obtained by Ahmad (1992) who concluded that a vast majority (85%) of the farmers were unsatisfied with the role of extension agent in proper dissemination of agricultural technology.

Table 4: Source of Information about Modern Agricultural Technologies

Location	Source of Information about Modern Agricultural Technologies							
	Extension Staff		Research Staff		Electronic Media		Fellow Farmer	
	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
Bannu	17 (28)	43 (72)	-	60 (100)	17 (28)	43 (72)	31 (52)	29 (48)
Mansehra	21 (35)	39 (65)	6 (10)	54 (90)	33 (55)	27 (45)	42 (70)	18 (30)
Mardan	14 (23)	46 (77)	-	60 (100)	26 (43)	34 (57)	54 (90)	6 (10)
Swat	1 (2)	59 (98)	1 (2)	59 (98)	5 (8)	55 (92)	25 (42)	35 (58)
Total	53 (22)	187 (78)	7 (3)	233 (97)	81 (34)	159 (66)	152 (63)	88 (37)

Reasons for No Knowledge about Modern Agricultural Technologies

There could be many and varied reasons for farmers ignorance regarding new agricultural technologies. However, the main reasons forwarded by the sample farmers are explained in Table 5, which revealed that 58 (24%) farmers reported that they did not know about the modern technology at all. This was followed by 44 (18%) farmers reported that lack of knowledge was the result of poor interest of extension staff. Malik and Prawl (1993) also identified that one of the weaknesses of extension system is the inability of extension agent to provide timely information about new technologies and its adoption by the farmers. As regard electronic media, 42 (18%) farmers reported that no specific program was aired on it. The fourth most important reason forwarded by 26 (11%) of farmers is, lack of cooperation, coordination and linkages among extension, research and farmers. This result is at par with Malik and Prawl (1993) who stated that lack of cooperation and communication among various institutions is a bottle neck in the dissemination and adoption of modern technologies.

Table 5: Reasons for No Knowledge about Modern Agricultural Technologies

Location	Reasons for No Knowledge about Modern Agricultural Technologies							
	No Knowledge		Extension Agent Not Taking Interest		No Specific Programs On Electronic Media		Lack of Cooperation Among The Trio	
	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
Bannu	25 (42)	35 (58)	12 (20)	48 (80)	26 (43)	34 (57)	1 (2)	59 (98)
Mansehra	5 (8)	55 (92)	5 (8)	55 (92)	1 (2)	59 (98)	5 (8)	55 (92)
Mardan	1 (2)	59 (98)	3 (5)	57 (95)	-	60 (100)	1 (2)	59 (98)
Swat	27 (45)	33 (55)	24 (40)	36 (60)	15 (25)	45 (75)	19 (32)	41 (68)
Total	58 (24)	182 (76)	44 (18)	196 (82)	42 (18)	198 (82)	26 (11)	214 (89)

Pattern of Information Transmission

It is necessary to disseminate information relating to modern agricultural techniques effectively and efficiently to the end-user for proper utilization. However, provision of information alone was not sufficient but it was also desirable that farmers must adopt the recent and sophisticated technologies in order to improve their productivity (Martin *et al.*, 1990). The main information sources are given in Table 6. Extension staff, theoretically speaking, was expected to be the main source; however, only 80 (33%) farmers reported that they got information from extension staff. On the other hand, 160 (67%) farmers reported that they did not get any information from extension agent. Research is the basic ingredient of agricultural development but unfortunately only 38 (16%) farmers got information from research staff and majority of these were in Mansehra i.e. 25 farmers. Surprisingly, pesticide dealers were on the top, where 166 (69%) farmers got information regarding their agricultural problems from pesticide dealers and most of the farmers belonged to district Mardan and Swat.

Informal education is also very important in extension service that is why 49 (20%) farmers had inherited their know-how from ancestors. A vast majority i.e. 162 (68%) farmers quoted fellow farmers as main source of information. This result was similar to that of Muhammad and Garforth (1999) who reported that a large majority of 73.8% respondent's major source of information was neighbors/friends/relatives. Same results are also reported by Sofranko *et al.* (1988), Cornwell (1990) and Reijndjes *et al.*, (1992). Zinnah (1990) also reported that 64% of farmers got information from fellow farmers regarding rice varieties. The overall analysis of Table 6 showed that the vast majority of farmers got information mainly from pesticide dealers, fellow farmers and had used personal knowledge. This also showed the poor role of extension agent and research staff as information source.

Table 6: Respondents Stating Pattern of Information Transmission

Location	Pattern of Information Transmission									
	Extension Agent		Research Staff		Pesticide Dealer		Personal Knowledge		Fellow Farmer	
	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
Bannu	16 (27)	44 (73)	6 (10)	54 (90)	24 (40)	36 (60)	7 (12)	53 (88)	46 (77)	14 (23)
Mansehra	50 (83)	10 (17)	25 (42)	35 (58)	34 (57)	26 (43)	5 (8)	55 (92)	39 (65)	21 (35)
Mardan	13 (22)	47 (78)	6 (10)	54 (90)	49 (82)	11 (18)	16 (27)	44 (73)	41 (68)	19 (32)
Swat	1 (2)	59 (98)	1 (2)	59 (98)	59 (98)	1 (2)	21 (35)	39 (65)	36 (60)	24 (40)
Total	80 (33)	160 (67)	38 (16)	202 (84)	166 (69)	74 (31)	49 (20)	191 (80)	162 (68)	78 (32)

Agricultural Problems Faced

Agriculture is confronted with numerous problems ever since the inception of mankind on earth. However, the nature and intensity of the problems have been changing from time to time. Moreover, with the advancement in knowledge and technology problems were taking new shape. Plant protection has emerged over the past few decades with expanding measures and used by increasing number of farmers against pests and insects attacks on almost all crops. Table 7 showed that pest and disease was the most striking and visible problem, reported by 194 (81%) farmers. Pest and insect, according to experts report damage the crop to a great extent. Agricultural marketing was another problem reported by 32 farmers mainly from district Swat. Market refers to a place where producers and buyers can meet easily and negotiate. In district Swat due to suitable climatic conditions perishable commodities are produced almost round the year. The problem is complicated due to lack of farm to market roads in Swat. Furthermore, poor financial conditions of farmers, particularly small farmers, also obstructed to market their products. Unavailability of quality seeds and chemical fertilizer was reported by 96 (40%) farmers.

High prices of agricultural inputs were reported by 120 (50%) farmers. Majority 55 of these farmers were in district Bannu, followed by Mardan (31) and Mansehra (25). Weeds were reported as another problem and according to experts reports, weeds compete with crops in taking nutrition from land and thus, reduce 40% of the total yield. However, this problem was reported by only 10 (4%) farmers. Timely and adequate supply of water is an important input for obtaining high yield per acre. Table 7 showed that 84 (35%) farmers reported water shortage problem mainly in Mansehra, Bannu and Mardan. The last problem faced by the farmers was minimal profit, reported by 28 (12%) farmers. Thus, there was a need to switch over from less profitable crops to more profitable crops. It can be concluded that due to unavailability of proper information source, the profitable crop cultivation could not be materialized.

Table 7: Respondents Stating Agricultural Problems Faced

Location	Agricultural Problems Faced						
	Pest, Disease Problem (%)	Marketing (%)	Unavailability of Quality Seed/Fertilizer (%)	High Prices of Agriculture Inputs (%)	Weeds (%)	Water Shortage (%)	Less Production, So Less Profit (%)
Bannu	28 (47)	1 (2)	23 (38)	55 (92)	-	22 (37)	16 (28)
Mansehra	48 (80)	4 (7)	36 (60)	25 (42)	2 (3)	37 (62)	1 (2)
Mardan	58 (97)	-	9 (15)	31 (52)	6 (10)	25 (42)	5 (8)
Swat	60 (100)	27 (45)	28 (47)	9 (15)	2 (3)	-	6 (10)
Total	194 (81)	32 (13)	96 (40)	120 (50)	10 (4)	84 (35)	28 (12)

Totals may not tally due to multiple answers

Association between Farm Size and Agricultural Problems Faced

Analysis in Table 8 indicated the association between farm size and agricultural problems faced by the farmers in the study area. A Chi-square test was applied to find the association between the two variables. It is evident that there existed a highly significant association (as $P < 0.05$) between farm size and weeds infestation in the field. P- Value is 0.001, which showed that as the size of land increase the chances of weed infestation also increases. Pest, disease attack and water shortages, both has significant association with the farm size, meaning as the farm size increases the chances of occurrence of both problems also increases. All the other problems i.e. marketing, unavailability of quality seed/fertilizer, high prices of agriculture inputs and less production, so less profit have non-significant association with farm size.

Table 8: Association between Farm Size and Agricultural Problems Faced

Agricultural Problems Faced	Farm Size of Farmers						Chi-Square p-value
	Small Farms		Medium		Large		
	Yes	No	Yes	No	Yes	No	
Pest, Disease Problem	131	40	37	2	26	4	.022*
Marketing	28	143	2	37	2	28	.091 ^{N.S}
Unavailability of Quality Seed/Fertilizer	76	95	10	29	10	20	.070 ^{N.S}
High Prices of Agriculture Inputs	87	84	19	20	14	16	.900 ^{N.S}
Weeds	2	169	5	34	3	27	.001**
Water Shortage	51	120	19	20	14	16	.030*
Less Production, So Less Profit	25	144	2	37	1	29	.074 ^{N.S}

Solution of Agricultural Problems

Farmers faced different agriculture problems and try to seek solution of these problems through different sources. Information is therefore, considered to be one of the most important means in agriculture that assists farmers to take decisions and appropriate actions for development of farming and solution of problems (Harris *et al.*, 2001; Morrow *et al.*, 2002; Stefano *et al.*, 2005). The data in Table 9 showed that majority of farmers i.e. 191 (80%) got solution of their problems from pesticide dealers. This was because pesticide dealers try to provide services free of cost at farmers door step. This was followed by 161 farmers who solved their problems by themselves. Fellow farmers also use to help solve problems in the study area as stated by 66 farmers (27%). Only 25 farmers mainly from district Mansehra sought the help of research staff. Extension services, according to our data failed to perform dutifully their activities as only 52 farmers (22%) got solution of their problem through extension agent. This result contradicts the findings of Oladosu and Okunade (2006) who stated that 69.58% of the farmers claimed that helped them solve their problems.

Table 9: Farmers Stating Source of Solution of Agricultural Problems

Location	Solution of Agricultural Problems				
	Extension Agent (%)	Research Staff (%)	Fellow Farmer (%)	Pesticide Dealer/Staff of Company (%)	Personal Knowledge Applied/By Self (%)
Bannu	7 (12)	4 (7)	27 (45)	36 (60)	73 (72)
Mansehra	31 (52)	15 (25)	9 (15)	44 (73)	27 (45)
Mardan	13 (22)	6 (10)	17 (28)	54 (90)	40 (67)
Swat	1 (2)	-	13 (22)	57 (95)	51 (85)
Total	52 (22)	25 (10)	66 (27)	191 (80)	161 (67)

Totals may not tally due to multiple answers

The data in Table 9 is also presented in a pie chart for understanding at a glance in Fig. 1.

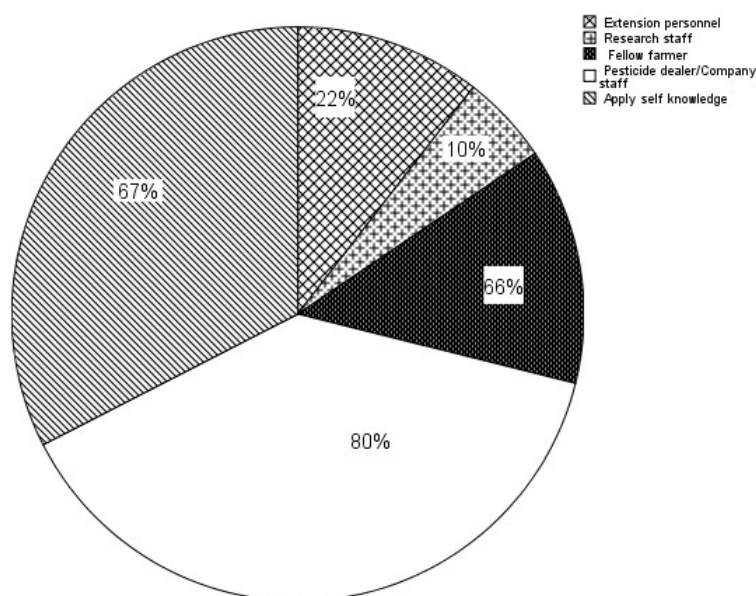


Fig: 1 Source of Solution of Agricultural Problems

Conclusion and Recommendations

Efficient and effective information system by extension services could be instrumental in solving agricultural problems. However, the data showed that extension department failed to transfer required information among the farming community, which adversely affected agricultural productivity. Through healthy extension services farmers problems could be solved in time and ultimately socio-economic conditions of farmers will be improved. In Pakistan, agriculture is confronted with many problems like lack of: technical know-how, knowledge, information and inputs, pest/disease attack, water shortage, weeds etc. Farmers' main sources of information were pesticide dealers, personal knowledge, fellow farmers, extension staff and lastly research staff. Mostly farmers depended on pesticide dealers as a main source of information for solving their problems. Amongst various information sources, extension services were regarded as very poor and having negligible role in information transmission. It is concluded that extension services need to be activated for rapid dissemination and diffusion of information across the region.

The following recommendations are made on the basis of the study.

1. Effective and efficient information system should be developed by extension services for provision of timely information to the farmers.
2. Pesticide dealers should be trained to provide required and necessary information to the farmers at local level in collaboration with extension department.
3. Strong linkages for information flow should be developed among s, researchers, planners and policy makers, farmers, teaching institutions and private sector.

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