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Communication Behaviour of Small Farmers in Relation to Wheat Production Technology

K. Singh*[1], P. Singh[2] and J.P. Lakhera[3]
[1]KVK, Dholpur, [2]Agricultural Research Station
[3]Directorate of Extension Education
Swami Keshwanand Rajasthan Agricultural University, Bikaner - 334 006

The study was conducted in Bharatpur district of Rajasthan. Out of nine Panchayat Samities in the district, three Panchayat Samities were selected purposively. Similarly, three villages were selected randomly from each Panchayat Samiti this way nine villages were selected. Twenty five farmers selected from each village making a total sample 225 respondents. The most important communication channels used by small farmers were training, method demonstration, result demonstration and field days. The important and prominent personal localite channels being preferred were KVK/ATC, Agricultural Supervisor and progressive farmers whereas, important impersonal localite channels were radio, film show and printed materials. It was found that communication behaviour of the farmers was positively and significantly associated with caste, level of education, size of land holding, farm power, linkage with change agent, socio-economic status, social participation and agricultural infrastructure available with farmers. It was also revealed in the study that adoption of seed technology, use of nitrogenous fertilizers, soil and organic matters and use of weedicides in wheat production was positively and significantly related with the communication behaviour of small farmers. Further, the knowledge level of small farmers regarding wheat technology was positively and significantly related with use of personal cosmopolite, localite and impersonal cosmopolite channels. Whereas, the level of attitude of small farmers was positively and significantly related with use of personal cosmopolite as well as localite communication channels.

Key words: Information sources, change agent, agricultural infrastructure, attitude, personal cosmopolite

Communication of farm innovations to farmers is the key to agricultural development in India. Leagons (1964), throwing light on the importance of communication. The process of communication lays the potential for millions of village people to overcome ignorance, poverty, disease and to attain a status of economic and social well being. They act as opinion leaders, provide information and instrumental in bringing about success in agricultural production by transferring the technology to the fellow farmers in the community. Keeping this in view, the present study was undertaken with the following specific objectives:

- To study the communication behaviour of small farmers on utilization of different channels/ sources in the adoption of wheat production technology.
- To find out the relationship between utilization of communication channels and personal attributes of small farmers.
- To ascertain association between communication behaviour and extent of adoption of small farmers about improved production technology of wheat.
- To find out association of communication behaviour with level of Knowledge and Attitude of small farmers towards improved production technology of wheat.

*Corresponding author email: phoolsinghbagenia@rediffmail.com

Materials and Methods

The study was conducted in Bharatpur district of Rajasthan during Rabi 2006-07. Out of nine Panchayat Samities in the district, three Panchayat Samities namely, Kumher, Sewar and Nadbai were selected purposively on the basis of higher area and producton of wheat. From each selected Panchayat Samity three villages were selected randomly, and thus, nine villages were selected. For selection of respondents a comprehensive list of small -farmers was prepared with the help of Patwari. From the farmer's list, 25 small farmers (respondents) were selected randomly from each village constituting a sample of 225 respondents for the study. To determine the level of knowledge of the respondents a knowledge test was developed. The innovations selected for the study were included in the knowledge test. One score was assigned to each correct answer. The total of all the practices makes knowledge score of the individual farmer.

Attitude was measured by the attitude scale developed by Nair (1969). The scale followed the Linkert scaling pattern. The response patterns were strongly agree, agree, undecided, disagree and strongly disagree. The scoring procedure followed by 5,4,3,2 and 1 for positive and 1,2,3,4 and 5 for the negative statements respectively. Adoption of recommended wheat production technology was measured by means of adoption index. The purpose was to quantify the extent of adoption of wheat technology and not to arrive at individual's adoption index. This procedure was followed for 6 major production technologies subdivided in to 12 practices for the study. The practices are seed technology (improved or HYV wheat seed, seed rate, depth of sowing, spacing row to row, sowing time, seed treatment, soil and organic matters, chemical fertilizers technology (use of nitrogenous and phosphatic fertilizers), use of plant protection measures for insect pest and disease, chemical control of weeds, number of irrigation used were also calculated in the responses regarding adoption of wheat production technology.

Use of communication channels refer to use of different type of channels as expressed by respondents for getting information about the different package of practices for production of wheat crop. The list of communication channels available in the study area was prepared in consultation with the staff of the Krishi Vigyan Kendra, National Research Centre of ICAR and extension staff of Department of Agriculture. These channels were then classified into three categories namely, personal cosmopolite, personal localite and impersonal cosmopolite channels. The utilization pattern of communication channels and their effectiveness regarding the adoption of improved wheat production technology was worked out under this head. Accordingly farm and home visit, result demonstration, methods demonstration, office call, study tour, field trips, group discussion, meeting, campaign, training, exhibition, field day and kishan mela were classified as personal cosmopolite channel. The Agriculture supervisor (V.L.W.), A.E.O., B.D.O., SMS, KVK/ATC, cooperative, farmers organization, Panchayat, Progressive farmers, friends, neighbor, farm leader, relatives, input merchants were classified as personal localite channels. The channels classified as impersonal cosmopolite were radio, T.V. personal letter, poster, chart, film, printed material, news paper articles, farm journal, circular letter, tea shop board, banner, wall printing, crop display board and flap book etc. The data were collected with the help of interview schedule in local dialect and responses were recorded accordingly. The collected data were analyzed with the help of statistical methods like frequency distribution, percentage, analysis of variance X_2 (chi-square test), 't' test, correlation coefficient and rank order correlation were used in this study based on the nature of the data.

Results and Discussion

Communication behaviour of small farmers

Use of Personal Cosmopolite Channels

It is evident from the Table-1 that training is found to be an important communication channel for the adoption of improved farm technology by the small farmers. The percentage of the respondents who utilized training as a source of communication for

Table 1. Use of personal cosmopolite channels by the small farmers regarding adoption of 'wheat' technology

Communication media	H.Y.V. seed		Seed rate		Time of sowing		Method of sowing		Depth of sowing		Seed treatment	
	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank
Farmer and home visit	24 (10.66)	8	16 (7.11)	5	17 (7.55)	9	8 (3.55)	9	4 (1.78)	6	4 (1.78)	9
Result demonstration	98 (43.55)	3	72 (32.00)	2	64 (28.44)	3	48 (21.33)	3	48 (21.33)	3	18 (8.10)	3
Method demonstration	124 (55.11)	2	108 (48.00)	1	98 (43.55)	2	115 (51.11)	1	110 (48.88)	2	28 (12.44)	2
Office Call	4 (1.78)	11	0 (0.00)	9	0 (0.00)	11	0 (0.00)	10	0 (0.00)	8	2 (0.82)	10
Tour/Field trips	18 (8.10)	9	12 (5.33)	6	20 (8.89)	8	12 (5.33)	6	8 (3.55)	5	6 (2.66)	8
Group meeting discussion	32 (14.22)	6	11 (4.88)	7	25 (11.11)	6	10 (4.44)	7	8 (3.55)	5	9 (4.10)	6
Campaign	8 (3.55)	10	6 (2.66)	8	4 (1.78)	10	8 (3.55)	9	8 (3.55)	5	10 (4.44)	5
Training	132 (58.66)	1	108 (48.00)	1	112 (49.77)	1	112 (49.77)	2	124 (55.12)	1	32 (14.22)	1
Exhibition	65 (28.88)	4	48 (21.33)	3	39 (17.33)	4	9 (4.00)	8	7 (3.11)	6	8 (3.55)	7
Field Day	38 (16.88)	5	35 (15.55)	4	35 (15.55)	5	28 (12.44)	4	32 (14.22)	4	18 (8.00)	3
Kisan Mela	25 (11.11)	7	16 (7.11)	5	24 (10.66)	7	14 (6.22)	5	18 (8.10)	5	12 (5.33)	4

Table 1.contd..

Communication media	Nitrogenous fertilizer		Phosphatic fertilizer		Irrigation		Organic matter		Plant protection		Weedicides	
	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank
Farmer and home visit	15 (6.66)	9	16 (7.11)	8	18 (8.00)	7	6 (2.66)	8	4 (1.78)	9	6 (2.66)	7
Result demonstration	72 (32.10)	3	72 (32.10)	3	82 (36.45)	2	60 (26.66)	3	20 (8.80)	4	61 (27.11)	3
Method demonstration	136 (60.40)	1	124 (55.11)	2	48 (21.33)	3	125 (55.55)	2	25 (11.11)	2	98 (43.55)	1
Office Call	0 (0.00)	11	0 (0.00)	10	0 (0.00)	9	0 (0.00)	11	4 (1.78)	9	2 (0.89)	8
Tour/Field trips	16 (7.11)	8	16 (7.11)	8	16 (7.11)	7	11 (4.88)	7	8 (3.55)	7	6 (2.66)	7
Group meeting discussion	30 (13.33)	7	28 (12.44)	7	22 (9.78)	5	40 (17.77)	5	5 (2.22)	8	16 (7.11)	5
Campaign	8 (3.55)	10	4 (1.78)	9	0 (0.00)	9	2 (0.89)	10	12 (5.33)	5	2 (0.89)	8
Training	128 (56.88)	2	128 (56.88)	1	98 (43.55)	1	130 (57.77)	1	28 (12.44)	1	86 (38.22)	2
Exhibition	55 (24.44)	5	50 (22.22)	5	16 (7.10)	8	4 (1.78)	9	9 (14.18)	6	0 (0.00)	9
Field Day	35 (15.55)	6	35 (15.55)	6	32 (14.22)	4	38 (16.88)	4	22 (9.77)	3	48 (23.33)	4
Kisan Mela	58 (25.77)	4	52 (23.11)	4	20 (18.89)	6	16 (7.11)	6	8 (3.55)	7	9 (4.00)	6

NOTE: Figure in parentheses indicate percentage of the respondents; Total of percentages in any column when added will exceed 100 since more than on channel was cited by the respondents; Rank .0. Rank order

different practices are H.Y.V. seed (58.66%), organic matter (57.77%), nitrogenous and phosphatic fertilizers (56.88%), depth of sowing (55.12%), time & method of sowing (49.77%), seed rate (48.00%), iIrrigation (43.55%), weedicide (38.22%), seed treatment (14.22%) and use of plant protection measures (12.44%).

The percentage of the respondents who utilized method demonstration as a sources of

Table 2. Use of personal localite channels by the small farmers for regarding adoption of wheat production technology

Communication media	H.Y.V. seed		Seed rate		Time of sowing		Method of sowing		Depth of sowing		Seed treatment	
	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank
Agriculture Supervision (C.V.L.W.)	64 (28.44)	4	105 (46.66)	2	85 (31.78)	4	92 (40.88)	2	120 (53.33)	1	28 (12.44)	3
A.E.O.	24 (10.66)	10	22 (9.77)	8	18 (8.00)	9	15 (6.66)	8	14 (6.22)	8	16 (7.11)	4
B.D.O.	12 (5.33)	12	4 (1.17)	13	8 (3.55)	11	6 (2.66)	12	4 (1.77)	12	10 (4.44)	7
S.M.S.	42 (18.66)	6	36 (16.10)	5	40 (17.77)	6	35 (15.55)	5	38 (16.88)	4	40 (17.17)	2
KVK/ATC	98 (43.55)	1	108 (48.10)	1	94 (41.77)	2	98 (43.55)	1	106 (47.11)	2	48 (21.33)	1
Co-operatives	32 (14.22)	9	15 (6.66)	10	14 (6.22)	10	4 (1.77)	13	22 (9.79)	6	16 (7.11)	4
Farmers organization	18 (8.10)	11	16 (7.11)	9	18 (8.10)	9	17 (7.55)	7	6 (.2.66)	11	0 (0.00)	9
Panchayat	8 (3.55)	13	6 (2.66)	12	4 (1.77)	13	4 (1.77)	13	6 (2.66)	11	0 (0.00)	9
Progressive farmers	92 (40.88)	2	92 (40.88)	3	96 (42.66)	1	34 (15.11)	6	28 (12.44)	5	14 (6.22)	5
Friends	65 (28.88)	5	28 (12.44)	7	18 (8.00)	9	10 (4.44)	10	12 (5.33)	9	12 (5.33)	6
Neighbour's	90 (40.00)	3	92 (40.88)	3	88 (38.11)	3	90 (40.00)	3	85 (37.77)	3	10 (4.44)	7
Gossip group	12 (5.33)	12	8 (3.55)	11	6 (2.66)	12	0 (0.00)	14	0 (0.00)	13	2 (0.88)	8
Farm leader	48 (21.33)	6	48 (21.33)	4	42 (18.66)	5	45 (20.00)	4	12 (5.33)	9	40 (17.77)	2
Input merchant	38 (16.66)	7	30 (13.33)	6	32 (14.22)	7	12 (5.33)	9	10 (4.44)	10	16 (7.11)	4
Relatives	27 (12.10)	8	22 (9.77)	8	22 (9.77)	8	8 (3.55)	11	18 (8.00)	7	10 (4.44)	7

Table 2. contd..

Communication media	Nitrogenous fertilizer		Phosphatic fertilizer		Irrigation		Organic matter		Plant protection		Weedicides	
	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank
Agriculture Supervision (C.V.L.W.)	94 (41.78)	3	85 (37.78)	2	32 (14.22)	3	24 (10.66)	5	18 (8.00)	2	32 (14.22)	2
A.E.O.	13 (6.77)	13	12 (5.33)	12	8 (3.55)	9	12 (5.33)	8	8 (3.55)	6	11 (4.88)	8
B.D.O.	12 (5.33)	14	10 (4.44)	13	4 (1.17)	11	10 (4.44)	10	4 (1.17)	9	6 (2.66)	9
S.M.S.	42 (18.66)	7	22 (9.77)	9	38 (16.88)	2	14 (6.22)	7	9 (4.00)	5	18 (8.00)	5
KVK/ATC	112 (49.77)	1	118 (52.44)	1	85 (37.77)	1	96 (42.67)	2	36 (16.00)	1	98 (48.35)	1
Co-operatives	62 (27.55)	4	28 (12.44)	7	20 (8.88)	4	14 (6.22)	7	4 (1.77)	9	0 (0.00)	11
Farmers organization	32 (14.22)	9	20 (8.88)	10	0 (0.00)	12	11 (4.88)	9	0 (0.00)	10	0 (0.00)	11
Panchayat	18 (8.00)	12	18 (8.00)	11	4 (1.77)	11	14 (6.22)	7	4 (1.77)	9	2 (0.89)	10
Progressive farmers	55 (24.44)	5	48 (21.33)	4	18 (8.00)	6	110 (48.89)	1	18 (8.00)	2	28 (12.44)	3
Friends	26 (11.55)	11	26 (11.55)	8	12 (5.33)	7	44 (19.55)	3	12 (5.33)	3	22 (9.77)	4
Neighbour's	96 (42.66)	2	72 (32.00)	3	11 (4.88)	8	41 (18.22)	4	9 (4.00)	5	14 (6.22)	6
Gossip group	10 (4.44)	15	8 (3.55)	14	11 (4.88)	8	15 (6.67)	6	0 (0.00)	10	14 (6.22)	6
Farm leader	35 (15.55)	8	32 (14.22)	6	19 (8.44)	5	9 (4.00)	11	18 (8.00)	2	18 (8.00)	5
Input merchant	48 (21.33)	6	38 (16.11)	5	6 (2.66)	10	2 (0.89)	13	11 (4.88)	4	12 (5.33)	7
Relatives	28 (12.44)	10	18 (8.00)	11	11 (4.88)	8	4 (1.77)	12	6 (2.66)	8	14 (6.22)	6

NOTE: Figure in parentheses indicate percentage of the respondents; Total of percentages in any column when added will exceed 100 since more than on channel was cited by the respondents; Rank .0. Rank order

communication for different practices are use of nitrogenous fertilizers (60.4%), H.Y.V. seed (55.11%), method of sowing (51.11%), use of phosphate fertilizers (55.11%) and organic matter (51.55% each), depth of sowing (48.88%), Seed rate (48.00%) and other technologies are found less than 45 per cent i.e. time of sowing and use of weedicide, irrigation, seed treatment and use of P.P. measures

Table 3. Use of impersonal cosmopolite channels by the small farmers for regarding adoption of wheat production technology

Communication media	H.Y.V. seed		Seed rate		Time of sowing		Method of sowing		Depth of sowing		Seed treatment	
	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank
Radio	135 (60.00)	1	126 (56.00)	1	128 (56.88)	1	86 (38.22)	1	48 (21.33)	1	24 (10.11)	1
Personal letter about cultivation	30 (13.32)	4	4 (1.77)	8	13 (5.77)	8	18 (8.00)	6	24 (10.66)	3	8 (3.55)	3
Poster/Chart	18 (8.00)	9	9 (4.00)	7	10 (4.44)	9	0 (0.00)	8	0 (0.00)	7	0 (0.00)	6
Film	64 (28.44)	2	64 (28.44)	2	62 (27.55)	2	62 (27.55)	2	48 (21.33)	1	22 (9.77)	2
Printed material (Folder, Booklet, leaflet etc.)	55 (24.44)	3	42 (18.66)	3	28 (12.44)	3	26 (11.55)	4	26 (11.55)	2	24 (10.66)	1
News paper articles	22 (9.77)	8	18 (8.00)	5	16 (7.11)	6	20 (8.88)	5	18 (8.00)	4	8 (3.55)	3
Farm journal	24 (10.66)	7	4 (1.77)	8	14 (6.22)	7	20 (8.88)	5	16 (7.11)	5	8 (3.55)	3
Circular letter	25 (11.11)	6	0 (0.00)	9	0 (0.00)	10	0 (0.00)	8	0 (0.00)	7	8 (3.55)	3
Tea shop Board	4 (1.77)	11	4 (1.77)	8	4 (1.77)	10	0 (0.00)	8	0 (0.00)	7	0 (0.00)	5
Wall painting	2 (0.88)	12	0 (0.00)	9	0 (0.00)	11	0 (0.00)	8	0 (0.00)	7	0 (0.00)	5
Field board	18 (8.00)	9	13 (5.77)	6	18 (8.00)	5	16 (7.11)	7	16 (7.11)	5	0 (0.00)	5
Flip Book	28 (12.44)	5	24 (10.65)	4	24 (10.66)	4	26 (11.55)	3	26 (11.55)	2	2 (0.88)	4
Banner	18 (10.00)	10	0 (0.00)	9	0 (0.00)	11	0 (0.00)	8	0 (0.00)	7	0 (0.00)	5

Table 3.contd..

Communication media	Nitrogenous fertilizer		Phosphatic fertilizer		Irrigation		Organic matter		Plant protection		Weedicides	
	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank	No.	Rank
Radio	98	1	92	1	124	1	42	1	18	1	45	1
	(43.55)		(40.88)		(55.11)		(18.66)		(8.00)		(20.00)	
Personal letter	26	5	26	5	18	6	0	7	12	2	12	4
about cultivation	(11.55)		(11.55)		(8.00)		(0.00)		(5.33)		(5.33)	
Poster/Chart	4	10	4	9	6	8	0	7	8	3	0	7
	(1.77)		(1.77)		(2.66)		(0.00)		(3.55)		(0.00)	
Film	65	2	58	2	90	2	38	2	8	3	16	3
	(28.88)		(25.77)		(40.00)		(16.88)		(3.55)		(7.11)	
Printed material (Folder,	38	3	36	3	48	3	12	4	18	1	20	2
Booklet, leaflet etc.)	(16.88)		(16.00)		(21.33)		(5.33)		(8.00)		(8.88)	
News paper articles	18	5	16	6	20	5	8	5	5	5	12	4
	(8.00)		(7.11)		(8.88)		(3.55)		(2.22)		(5.33)	
Farm journal	8	8	6	8	18	6	32	3	12	2	0	6
	(3.55)		(2.66)		(8.00)		(14.22)		(5.33)		(0.00)	
Circular letter	12	7	10	7	26	4	0	2	4	6	0	6
	(5.33)		(4.44)		(11.55)		(0.00)		(1.77)		(0.00)	
Tea shop Board	8 (3.55)	8	6 (2.66)	8	0 (0.00)	10	0 (0.00)	7	4 (1.77)	6	0 (0.00)	6
Wall painting	6	9	4	9	2	9	0	7	0	7	0	6
	(2.66)		(1.77)		(0.88)		(0.00)		(0.00)		(0.00)	
Field board	28	4	28	4	0	10	0	7	8	3	12	4
	(12.44)		(12.44)		(0.00)		(0.00)		(3.55)		(5.33)	
Flip Book	28	4	28	4	12	7	0	7	6	4	4	5
	(12.44)		(12.44)		(5.33)		(0.00)		(2.66)		(1.77)	
Banner	8	8	4	9	0	10	6	6	2	6	0	6
	(3.55)		(1.77)		(0.00)		(2.66)		(0.88)		(0.00)	

NOTE: Figure in parentheses indicate percentage of the respondents; Total of percentages in any column when added will exceed 100 since more than on channel was cited by the respondents; Rank .0. Rank order

The third important channel was result demonstration. The corresponding percentage for different farm practices are; H.Y.V. seed (43.55%), irrigation (36.45%), use of phosphatic fertilizers (32.00%) and seed rate (32.00%) respectively. However, time of sowing, use of weedicide, organic matter, method of sowing and depth of sowing, use of P.P. measures and seed treatment were reported by less than 30 per cent.

The field day was ranked fourth, and the corresponding percentage of the channels for different practices reported below 25.00 per cent was weedicide, however, the least practices were reported i.e. hyv seed, organic matter, seed rate, time of sowing and use of nitrogenous and phosphatic fertilizers, depth of sowing, method of sowing, irrigation technology, communication channels like, kisan mela, group meeting discussion and exhibition were reported poor and accorded fifth, sixth and seventh ranks respectively, whereas, farm and home visit, tour and field trips, campaign and office calls were reported least and stood placed VIIIth, IX, X and XIth respectively. The findings are in line with the findings of Singh (1981), Bareth & Intodia (1998), Shirke et al. (2002) and Meena et al. (2010).

Use of personal localite channels

The Table 2, clearly indicates that among the personal localite channels the small farmers most preferably used the KVK/ATC. However, Agriculture Supervisor, progressive farmers and neighbour were ranked second, third and fourth, respectively. While, SMS, farm leaders, friends and input merchants were ranked fifth, sixth, seventh and eighth, respectively whereas, AAOs, relatives, cooperatives, farmers organization and gossip group were ranked ninth to thirteenth in the same order. The panchayat members and B.D.O's were ranked fourteenth and fifteenth respectively. Similar finding were reported by Singh (1981), Panjabi *et al*. (1998), Saravanan (2009) and Meena et al. (2010).

Use of Impersonal Cosmopolite Channels

Table 3 indicates that among the use of impersonal cosmopolite channel by the small farmers, more than half of the respondents were using radio for H.Y.V. seed (60.00%), time of sowing (56. 88%), seed rate (56.00%), irrigation (55.11%) and less than half of the respondents using film show, printed material, flip book and personal letter and were ranked second, third, fourth and fifth, respectively, The articles in news paper and farm journals ranked sixth and seventh. The cosmopolite channel like crop display board, field board, poster, circular letter, poster and charts were placed at eighth, ninth and tenth ranks respectively. The tea shop, banner, wall painting and cosmopolite channels are the least used channels by the farmers for seeking the information about new technology of wheat.

Similar results were reported by Bareth & Intodia (1998) , Darekar & Glove (2002), Saravanan (2009) and Singh et al. (2011) in their study.

Relationship between usage of communication channels and socio-economic characteristics of small farmers

The Table 4 shows relationship between personal attributes and utilization of communication channels by small farmers. The caste, education, family size, size of holding, farm power, change agent

Table 4. Relationship between communication behaviour and socio-economic characteristics of small farmers

Socio-economic characteristics	Communication channel		
	PCC	PLC	ICC
Age (r)	-0.175NS	-0.1333NS	-0.113NS
Caste (X_2)	91.320**	63.259**	63.719**
Education (X_2)	64.981**	56.623**	119.79**
Family type (X_2)	4.010NS	2.899NS	11.483*
Family size (X_2)	14.756**	28.114**	0.709NS
Income (r)	0.0606NS	0.304**	0.347**
Size of holding (r)	0.140**	0.227**	0.182**
Farm power (r)	0.254**	0.142**	0.372**
Change agent linkage (X_2)	64.938**	35.806**	35.806**
Contact with extension agencies (X_2)	16.234NS	33.77**	20.28**
Socio economic Status	0.364**	0.132**	0.511**
Social participation (X_2)	10.322*	25.687**	9.779**
Agri. Infrastructure (r)	0.325**	0.204**	0.52**

**=Significant at 1% level of significance,*= Significant at 5% level of significance NS = Non-significant, PCC = Personal cosmopolite channels PLC = Personal localite channels, ICC=Impersonal cosmopolite channels r = Correlation coefficient X_2 =Chi-square

linkage, socio-economic status, agricultural infrastructure and social participation were found to be significantly correlated with the use of personal cosmopolite channels. The caste, education, family size, income, size of holding, farm power, change agent linkage, contact with extension agency, socio-economic status, social participation and agricultural infrastructure were found to be significantly correlated with the use of personal localite channels. The caste, education, family type, income, size of holding, farm power, change agent linkage, contact with extension agencies, socio-economic status, social participation and agricultural infrastructures were found to be significantly correlated with the use of impersonal cosmopolite channels. The significant correlation clearly indicates that use and effectiveness of communication channels are depended on the general background of the small farmers. These findings are in confirmation of Singh (1981) and Sharma & Sharma (1994).

Association between communication behaviour and adoption behaviour of small farmers.

It is evident from Table 5 that a significant correlation exists between utilization of seed technology, nitrogenous fertilizers, soil and organic matter and weedicides and communication behaviour of small farmers. The adoption of all six technologies i.e. seed, nitrogenous and phosphatic fertilizers, plant protection, measures, soil and organic matters weedicides and irrigation management technologies were found to be significantly related with impersonal communication behaviour of small farmers. However, seed, nitrogenous fertilizers, plant protection measures

Table 5. Correlation coefficient between communication behaviour and adoption behaviour of small farmers

Adoption behavior	Communication channel		
	PCC	PLC	ICC
Seed Technology	0.294**	0.375**	0.332**
Chemical fertilizers technology			
(i).Nitrogenous fertilizers	0.146**	0.383**	0.340**
(ii). Phosphatic fertilizers	1.428NS	0.11NS	0.339**
Plant Protection	0.0072NS	0.223**	0.251**
Weedicides	0.156**	0.149**	0.141**
Irrigation management	0.114NS	0.090NS	0.180**
Soil and organic matters	0.378	0.292	0.254

** = Significant at 1% level of significance, * = Significant at 5% level of significance
NS = Non-significant, PCC = Personal cosmopolite channels
PLC= personal localite channels, ICC= impersonal cosmopolite channels

and weedicides technologies were found significantly related with the personal localite channels. The results clearly indicate that the extent of adoption of agricultural technology are constantly influenced by the use and availability of different communication channels to the farmers. The phosphatic fertilizer, plant protection measures and irrigation are the three important technology related to wheat crop, which were not found significantly related with personal communication behaviour of small farmers. While, out of six technologies only two technologies viz., phosphatic fertilizers and irrigation management technology were not found significantly related with personal localite channels. The similar findings have been reported by Singh (1981), Shirke et al (2002).

Association between communication behavior and knowledge and attitude of small farmers towards improved wheat production technology

The Table 6 clearly indicates that there is a positive and significant correlation was found

Table 6. Correlation coefficient between communication behaviour and knowledge and attitude of small farmers towards new farm technology

Communication behaviour	Knowledge (r)	Attitude (r)
Personal cosmopolite channels	0.466**	0.401**
Personal localite channels	0.215**	0.116**
Impersonal cosmopolite channels	0.271**	0.035NS

** =Significant at 1% level of significance

* = Significant at 5% level of significance;NS = Non-significant

between knowledge and attitude of the farmers and communication behavior except Impersonal cosmopolite channels and attitude. Similarly findings were also reported by Singh (1981) and Darekar & Glove (2002).

Conclusion

Thus from the above explanation it may be concluded that most important channels which have been used by the small farmers were; training, method demonstration, result demonstration and field Day While, on the other Hand the least used channels were farm and home visit, campaign and office Call and Most important and prominent personal localite channels were KVK/ATC, Agriculture Supervisor, progressive, farmers and neighbours.

It is also concluded that the variables which are found to be negative and non-significantly related with the use and effectiveness of communication channels are age with all three groups of communication channels, whereas Family type was significantly associated with both the channels i.e. personal cosmopolite channels and personal localite channels 'income' and contact with extension agencies were also found with personal cosmopolite channels while, only family size is not associated with impersonal cosmopolite channels respectively.

The other important conclusions drawn was that the seed technology, nitrogenous fertilizer technology, soil & organic matters and weedicides were the four important components of wheat technology which had shown positive trend so far the adoption of these practices was concerned. The adoption of wheat production technology was influenced by the use and availability of communication channels. There were positive significant correlation exists between the knowledge and attitude of the farmers and that of communication behaviour, although it is non-significant in one aspect i.e., Impersonal cosmopolite channels and attitude.

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