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COMMUNICATION TOOLS' EFFICACY FOR ADOPTION OF HYBRID CORN SEED IN PAKISTAN

Dr. Afsheen Masood[1], Pervaiz Akhter[2*] and Muhammad Sulman[2]
[1]The University of Punjab, Lahore
[2]University of Central Punjab, Lahore

Article Info

*Corresponding Author
Email id:
pervaizakhter303@gmail.com

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Abstract

Communication tools play a vital role to spread innovations amongst farmers' society; these channels include electronic media, print media and interpersonal communication. The present research study has been planned to find out the efficacy of different mediums of communication used by the farmers for adoption of hybrid corn seed. A self-structured indigenous rating scale has been used in order to collect data form 80 farmers of district Lodhran through non-probability purposive sampling. Computer software SPSS version-22 has been used for data analysis. Effectiveness of the communication channels for adoption of hybrid seed corn was evaluated. Descriptive analyses by the age group of 46-5 years with the percentage of 30.80 whereas, the mean of monthly income is Rs. 35423.08 and household is 7.71. Mean agriculture farm size is 11.83. Neighboring farmers, field staff of agriculture department and privates companies were ranked to be the most common sources for collecting information about Hybrid Seed Corn followed by Television, Newspaper and Radio respectively. Further findings of the study revealed that most of the respondent i.e. 38.50% belonging to age group of 36-45 years old.

1. Introduction

Communication plays an integral role in almost all professionals' guidance communication source. In fact no one can deny the importance of communication. Through useful communication farmers get some helpful information, ideas, and also share their own experiences with others. There are many communication sources including print media, electronic media and interpersonal communication channel. In order to increase yield rate, agricultural research departments always remain in process to invent new variety of crops' seeds to be grown. These agriculture departments have recently introduced some communication tools for raising awareness on fertilizers, pesticides, weedicides, technology for land cultivation and latest irrigation system in association with local and international organizations. These innovations are transferred amongst farmers through communication. According to Ayoda A.R (2010) interpersonal communication channel is efficient way for educating the farmers.

There is a dire need to broadcast agriculture related programs but unfortunately due to some certain reasons this area is being neglected. Zia, A. & Khan, A. (2012) concluded that "Apna" channel granted 8.3% air time to agricultural programs. Research also indicated some important reasons i.e sponsorship, low frequency of viewers and revenue etc. their findings revealed that required coverage to the agriculture related program was not given during 2005-2010 by the television news channels having high frequency of viewer ship.

The present research study is aimed to examine the role of communication tools for adoption of hybrid seed corn in Lodhran. The research explores the usefulness of different communication tools for spreading awareness amongst farmers and their

attitudinal change regarding the adoption of hybrid seed corn. Farmers depend on agriculture related programs including advertisements on PTV and Radio along with some newspapers' given coverage to agriculture sector. This study also explores more successful channel of communication for adoption of hybrid seed corn in that particular area. Chachhar et al. (2012) investigated that respondents preferred to watch agricultural-related programmes compared to other types of programmes aired on television.

Though, radio and television have been acclaimed as the most influential source of seeking agricultural information, amongst farmers, however, farmers largely depend on social network such as "*Baithak System*" in rural areas, including opinion leaders and change agents have also a great importance in persuading and adopting agricultural innovations. Hall, K., & Rhoades, E. (2010) stated that mass media including interpersonal communication influence individual's attitude international studies have shown interpersonal interactions influenced the farmers' decisions to accept or reject organic farming.

Electronic media includes television, radio, mobile phone and social media. Television and radio having large number of audience and opinion molding capacity are important sources of communication and dissemination of new ideas amongst the society particularly, in the field of agriculture. Radio and television have potential to influence the decision making process of the farmers while selecting innovations through its agriculture related programs and commercial adds sponsored by the agriculture based marketing companies, but the availability of these communication channels in the area is essential. According to Abbas et al. (2003) the electronic media was most effective tool of communication for seeking useful information results of their study showed that more than 50 % respondent were of the views that they could realize the messages of radio and television regarding sugarcane

Print media plays an important role agriculture sector, newspapers give special space to agriculture related stories including whereas, some educated farmers make use of print media in different ways such as agriculture based digests, brushers and banners. Rehan et al (2013) studied that print media along with neighboring farmers were most-liked medium for agricultural information, amongst farmers' community, whereas education and holding of agriculture land size had also influenced the decision-making of farmers.

2. Rationale

This research aims to explore the effectiveness of communication tools including electronic media, print media and as well as interpersonal communication in the field of agriculture. District Lodhran is situated in southern Punjab with great potential in the field of agriculture, whereas, the area under research has very low media coverage. Farmers have to depend on different communication channels for seeking agriculture related information and adopting innovations such as technology, pesticides, weedicides, fertilizers and particularly hybrid seeds of several crops. The study will help the media management in order to get farmers' attraction towards media and will also identify the scope of communication tools in the process of adopting innovations in agriculture sector.

Farmers use different sources of communication to learn about agriculture**.** Muhammad et al. (2004) concluded television show 'Haryali' as most accepted amongst farmers. However, the number of audiences perceiving contents of those telecasts as helpful and timely, was less. Comparatively, 'Kisan Time' was considered as better than Haryali'. Jehan et al. (2014) found that mobile phone were cheaper source of communication to participate in discussion and to get useful information about prices of goods from markets. Irfan Haider (2004) found local radio as an effective medium for adoption of farm practices. Muhammad et al. (2004) stated that a little number of regular audience preferred watching agriculture related programmes whereas, the two way communication did not exist.

Okwu et al. (2007) identified the usefulness of the radio programs and concluded that a major portion of farmers listen agricultural programmes on radio predominantly; the programmes regarding plant protection are well-liked whereas, some addressees use radio for information about livestock. Irfan et al. (2006) found a majority audience chosen television chasing by radio or print media as medium of agricultural information; however the respondents ranked TV, radio and print media on 1st, 2nd and 3rd position respect. Farooq et al. (2007) acknowledged the brochure as effective medium of information amongst posters, newspapers, books and magazines with less effective sources.

Farmers gathers agriculture related knowledge through different medium of communication in order to increase production. Muhammad et al. (2002) found out a larger portion of the farmers' community use agriculture based Digest for seeking relevant information however; there is a

difference in certain demographic characteristics influence the efficacy of communication tools.

Interpersonal communication is an important and familiar channel for diffusion of innovations in agriculture sector. Das, D. (2012) stated that interpersonal channel of communication has vital role to transfer knowledge about agriculture amongst the farmers. He further added that farmers preferred interpersonal communication for seeking information. This channel can be utilized easily for gathering and sharing ideas about agricultural activities. The fellow farmers are considered as trust worthy in this process.

A large number of communication channels are available to facilitate the farmers for knowing about new practices in agriculture. Jan et al. (2011) concluded that peer groups and other close elatives influenced the decisions-making of the farmers' society. However, majority of the farmers intended to adopt best practices to increase of yields of crops". Cheboi, S. and Mberia, H. (2014) find out the interpersonal channel of communication as an effective medium in diffusion and adoption of zero grazing innovation amongst farmers of Kenya.

Most common source of information in the rural areas is interpersonal communication between the farmers. Oleas et al. (2010)[I] concluded opinion leaders play a key role for disseminating and the useful agriculture related information amongst farmers and influence them to adopt innovations in agriculture. Gathecha et al. (2012) identified the neighboring farmers as the best source of diffusion of innovation amongst farmers. Through the regular and occasionally the discussion farmers share their experiences with one another and diffuse new ideas and information related to their agricultural activities.

2.1Diffusion of Innovations Theory

Diffusion is the procedure by which an innovation is communicated through certain channels over time amongst the members of a society. It is a special form of communication in that the messages are concerned with new ideas (Rogers, 1995, p. 5). In this study, diffusion of innovation refers to the adoption of hybrid corn seed in agriculture of Pakistan. Attributes of innovations includes five characteristics of innovations: (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability.

3. Objectives of the study

The main objectives of this study are:

- To measure the usage frequency of different communication tools amongst the farmers.
- To examine effectiveness of different communication tools in spreading awareness about agricultural inventions; and
- To identify the most effective channel of communication for adoption of hybrid corn.
- to analyze the role of the demographic characteristics of the farmers such as education, income, farm size and land ownership etc.;

3.1Hypotheses

Following are hypothesis:

- Interpersonal communication is most likely to be used for seeking agricultural information regarding adoption of hybrid seed corn than other medium of communication.
- There is significant relationship between use of communication tools and adoption of hybrid see corn by the farmers.
- There is relationship between education level of respondents and adoption of hybrid corn seed.
- There is relationship between monthly income level of respondents and adoption of hybrid corn seed
- There is relationship between land farm size of respondents and adoption of hybrid corn seed

4. Method

This particular research study is generally aims to investigate the communication tools' efficacy in adoption of best practices in agriculture sector of Pakistan and specially, adoption of hybrid corn seed by the farmers of district Lodhran.

Table 01 shows the reliability of scales along with the mean score of each scale. According to above table the reliability of scale regarding use of interpersonal communication for seeking agricultural information and adoption of hybrid corn seed is $a = .960$ and $M = 57.59$ whereas, reliability score of the scale regarding Newspaper is $a = .985$, $M = 37.32$, television $a = .981$ $M = 41.22$ and reliability of the scale regarding Radio is $a = .857$ and $M = 29.97$.

Table 2 shows some important demographic information including agricultural farms size, age group of respondents, education level of respondents, monthly income level, water availability for agriculture, number of household, farming experience and frequency of using different communication channels for agriculture purpose.

Table 1: *Descriptive Statistics and Reliability Coefficients for Study Variables*

Scales	***α***	***K***	***M***	***SD***	***Range***	
					Potential	Actual
Interpersonal Communication	.960	15	57.59	9.383	15-75	38-75
Newspaper as communication tool	.985	15	37.31	11.432	15-75	15-70
Television as communication toll	.981	15	41.22	11.605	15-75	15-75
Radio as Communication tool	.857	15	29.97	9.609	15-75	15-65

Note:α= reliability coefficient, k= no. of items in scale and subscale

Table 3 depicts the ranking of different communication channels in term of frequency. According to the table respondents ranked interpersonal communication channel with the highest mean score i.e M = 2.32 as 1st followed by television with M =1.77, Newspaper M = 1.55 and Radio M = 1.10 as 2nd, 3rd and 4th respectively.

4.1 Research Design

Survey research design has been applied for this research study.

4.2Sampling Strategy

Farmers possessing some certain characteristics specially who were earlier growing conventional corn seed and now they are shifting to grow hybrid corn seed, were selected for seeking most relevant response through non probability purposive sampling strategy.

4.3Sample

In order to get appropriate finding n=120 farmers were selected as a sample of this study, from the area under investigation whereas; the farmers aging from 30 years to 60 years were included in the sample.

A consent profrma was also got signed from all respondents whereby, the participants were informed that "their participation in this activity were voluntary. Their provided information would be kept confidential and only would be used for academic purpose; besides this, the respondents were allowed to withdraw their participation at any time while filling up the scales for this research, if they felt any discrimination or concerns".

4.4Inclusion and Exclusion Criteria

In this research study only those participants were selected who were engaged with agriculture since more than 3 years. All the respondents were from district lodhran. Though, the prescribed criterion with regard to age limit was 60 years but few

respondents aging more than 60 years were included due to their active participation and agriculture related activities and having decision-making authority over their younger. Some hired personels i.e agricultural experts working on behalf of land owners were also included. On the other hand some farmers were excluded due to some certain characteristics. Those who were dependent on vendors for using any agricultural on credit basis and individuals who are doing agriculture but have no decision powers to exercise.

4.5Measures

In order to seek information about usage and efficacy of various communication tools, well defined scales according to indigenous interpretation for measuring efficacy of interpersonal communication, newspapers, television and radio were developed in order to capture meaningful responses of the respondents. The tool was arranged in a logical order and it was administered to a representative population in order to check its initial psychometry properties. The reservations expressed by the participants during pilot study were accommodated and the tool was revised in order to make it more clear and comprehensive. That's why the finalized tool was used in the final data collection. Each scale contained 20 items with response options of strongly agree, agree, moderate, disagree and strongly disagree which have been given values as 5,4,3,2 and 1 respectively. The Cronbach's Alpha reliability coefficient of the tool in the pilot study and in the final collected data was *a= .960, 985,.981 and .857* respectively which was significantly fair enough to rely on the findings of the current research (Masood, A. Akhtar, P.,

Table 2: *Descriptive of Demographic Variables*

Variables	M	SD	f	%
Age Groups				
26-35			17	21.8
36-45			30	38.5
46-55			24	30.8
56-65			5	6.4
66-75			2	2.6
Education	6.55	4.57	--	--
Land Ownership	11.83	12.14	--	--
Land acquired on lease	5.96	7.42	--	--
Condition of underground water	--	--	--	--
Plain Water				
Salted Water	--	--	25	32.1
	--	--	53	67.9
Monthly income	35423.08	18134.79	--	--
Number of Household	7.71	2.58	--	--
Experience of Agriculture	20.90	11.046	--	--
Usage of conventional Corn Seed in Past	--	--	--	--
Yes	--	--	74	94.9
No	--	--	4	5.1
Frequency of Interpersonal Communication for agriculture purpose				
Never				
Occasionally	--	--	00	--
Fortnightly	--	--	00	--
Weekly	--	--	00	--
Daily			51	65.4
			27	34.6
Frequency of Newspaper reading for agriculture purpose				
Never			00	--
Occasionally	--	--	12	15.4
Fortnightly	--	--	41	50.0
Weekly	--	--	25	32.1
Daily			02	02.6
Frequency of Television for agriculture purpose				
Never	--	--	10	12.8
Occasionally	--	--	12	15.4
Fortnightly	--	--	20	25.6
Weekly			33	42.3
Daily			03	03.8
Frequency of Radio listening for agriculture purpose				
Never	--	--	40	51.3
Occasionally	--	--	30	38.5
Fortnightly	--	--	06	07.7
Weekly			02	02.6
Daily			00	00.0

Table 3: *Ranking of communication channels in term of Frequency*

Type Communication Channel	M	Std. Deviation	Ranking
Interpersonal Communication	4.35	.47	1st
Television	3.22	.73	2nd
Newspaper	3.09	1.11	3rd
Radio	1.62	.74	4th

Table 4: *Pearson Product Moment Correlation between Variables*

Variables	Interpersonal communication for agricultural purpose	Newspaper reading for agricultural purpose	Watching Television for agricultural purpose	Listening Radio for agricultural purpose
Adoption of hybrid corn seed	.325**	.443**	.486**	.055

Note: *p< .05; **p< .01; ***p< .001.

Variables	Adoption of hybrid corn seed through interpersonal communication	Adoption of hybrid corn seed through newspaper reading	Adoption of hybrid corn seed through Watching Television	Adoption of hybrid corn seed through Listening Radio
Education level of Respondents	.247*	.610**	.350**	.372**
Monthly Income level of Respondents	-.129	.056	.236*	.125
Size of agricultural land farm	-.079	.022	.208	.068

Note: *p< .05; **p< .01; ***p< .001.

4.6Operational Definitions

Usage of Communication tools for learning about agriculture include interpersonal communication medium, television through its agriculture related telecasts, newspapers having special page for agricultural stories and radio with garniture related transmission including advertisements of agricultural products.

Adoption of hybrid corn seeds refers to the shifting of farmers from growing conventional corn seed to hybrid corn seeds in agriculture sector. This adoption of hybrid seed indicates the communication tools efficacy for adoption.

4.7Procedure

This research was initiated by the formal permission from research review committee. The sample was accessed by researcher and research supervisor from the farmers of district Lodhran. Firstly, consent form was filled by the respondents. After that demographic information sheet and scales related to use of different communication tools were given to the respondents. Some illiterate farmers were helped out through reading the scales by researcher himself however, response options were taken by the respondents. The average time utilized by the respondents was 20 minutes. **5. Analysis**

Descriptive and inferential analyses were carried out by SPSS version 22. Pearson Product Moment correlation was used to find the relationship between usage of communications tolls, demographic characteristics, communication tools efficacy and adoption of hybrid corn by the farmer. The effectiveness of each tool was check through descriptive statistics.

5.1Data Analysis

This particular research examines the communication tool efficacy amongst the farmers regarding adoption of Hybrid Corn Seed. After collection of relevant data from the respondents, detailed inferential analyses were run and findings are given as follows:

6. Results and Discussion

Communication plays an important role in every field of life for sharing new ideas and collection relevant useful information about their activities. Similarly, in agriculture sector, different communication tools have a integral role for dissemination of helpful information and bring aspiration amongst farmers to adopt innovations in agriculture sector. Although the major crops of district Lodhran are Cotton, Wheat, Rice, Sugarcane and Maize but since last few years the farmers of district Lodhran have adopted to grow maize on a larger scale. The research explores the usefulness of different communication tools for spreading awareness amongst farmers and their attitudinal change regarding the adoption of hybrid seed corn in the area under research.

The main hypothesis of the research investigated the efficacy of interpersonal communication. Inferential analysis revealed that interpersonal communication was most common medium of communication amongst farmers growing hybrid seed corn. Gathecha et al. (2012) investigated that most effective channels that are most accessible include, another farmer, Barazas and Seed / Grain Stockiest. In this area of seeking and adopting the new agricultural inventions farmers depend on some change agents, opinion leaders and other medium of communication. Some training workshops organized by the government department in various areas are main source of learning about agricultural activities.

The second and third hypothesizes investigated the relationship between education level of respondents and use different communication channels for agricultural information with regard to adopt the hybrid seed corn and relationship between income level of respondents and usage of different communication channels for agricultural information regarding adoption of hybrid seed corn. Findings of the study depict that the education level of the farmers had significant relationship with usage of different communication channel for seeking relevant information for adoption of hybrid seed corn however; income level has no relationship, accordingly. Rehman et al. (2013) found that education and size of land holding had highly significant positive relationship with access to agricultural information while age and farming experience had non-significant relationship.

7. Conclusion

Considering the findings of present study it is concluded that the interpersonal communication channel is play very vital role in education the farmers' community with regard to collect the useful necessary information about agricultural betterment and adoption of innovation particularly, for adoption of hybrid seed corn in Pakistan. However, farmers considered different communication tools in accordance with their socioeconomic status such as education has significant positive relationship with the usage of communication tools for agriculture purpose. Data analysis depicts that in term of usage frequency, respondents ranked interpersonal communication channel as 1st followed by television, newspaper and radio as 2nd, 3rd and 4th respectively. Further findings of the study revealed that 77.90 % respondents used interpersonal communication of

daily basis and 32.10 were occasionally involved in interpersonal communication for seeking agricultural information. As far as usage of newspaper for agriculture purpose is concerned, only 5.10% respondents used to read news paper on daily basis 44.90% occasionally and 50% did never read newspaper for agricultural information. Whereas, 7.70% respondent were watching television for seeking agricultural information on daily basis, 61.50% occasionally and 30.8% did not watch television for seeking information on agriculture.

8. Recommendations

The representatives of the private companies are playing an important role in order to facilitate the farmers through spreading information regarding agricultural innovations. On the other hand the field staff of the agriculture extension department has also an important role in diffusion of innovations in agriculture sector of Pakistan. In this situation this is necessary that the private companies may consider appointing the most relevant and qualified staff to facilitate the farmers accordingly.

The agriculture extension department should also consider the impact of interpersonal communication on agriculture of the country while appointing the field staff. Agriculture department should appoint trained and qualified representatives in respective in accordance with the crops of the area.

For capacity building of the field staff of any organization, the experience sharing programs should be arranges time by time. Number of field activities such as training workshops and informative seminars should be increased.

The farmers should be made realized the benefits of new agriculture technology particularly while cultivating the land for any crop.

Media and communication organization should provided valuable relevant information through attractive and effective ways. Usage of local language for agricultural program and local prominent innovative farmers may play an effective way for spreading helping information amongst other follower farmers of concerned region or areas.

9. Limitations of the Study

There are so many limitations in every field f life these limitations may be in different shapes and nature. This study was a quantitative survey research therefore; there were many limitations to complete this research project.

Time constraint was main an limitation there was a very short time period to complete this research work which was a difficult task to complete with full integrity because the population of this survey research was farmers community of District Lodhran which situated far away from the Islamabad therefore, in order to fulfill essential requirement of the study I have to visit frequently the selected areas to collect valuable data for research purpose.

Financial limitations may also be considered because this research is purely for academic purpose and survey research requires lot of funds which can never be arranged easily by a student.

Collection of right information from the farmers was not an easy job because there is no research culture in Pakistan particularly in rural areas people are ready to expose their personal information such as their monthly income, land owned, age etc. some people considered the researcher as official from income tax or any otherwise an official from any other government department while answering the questions for research purpose.

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